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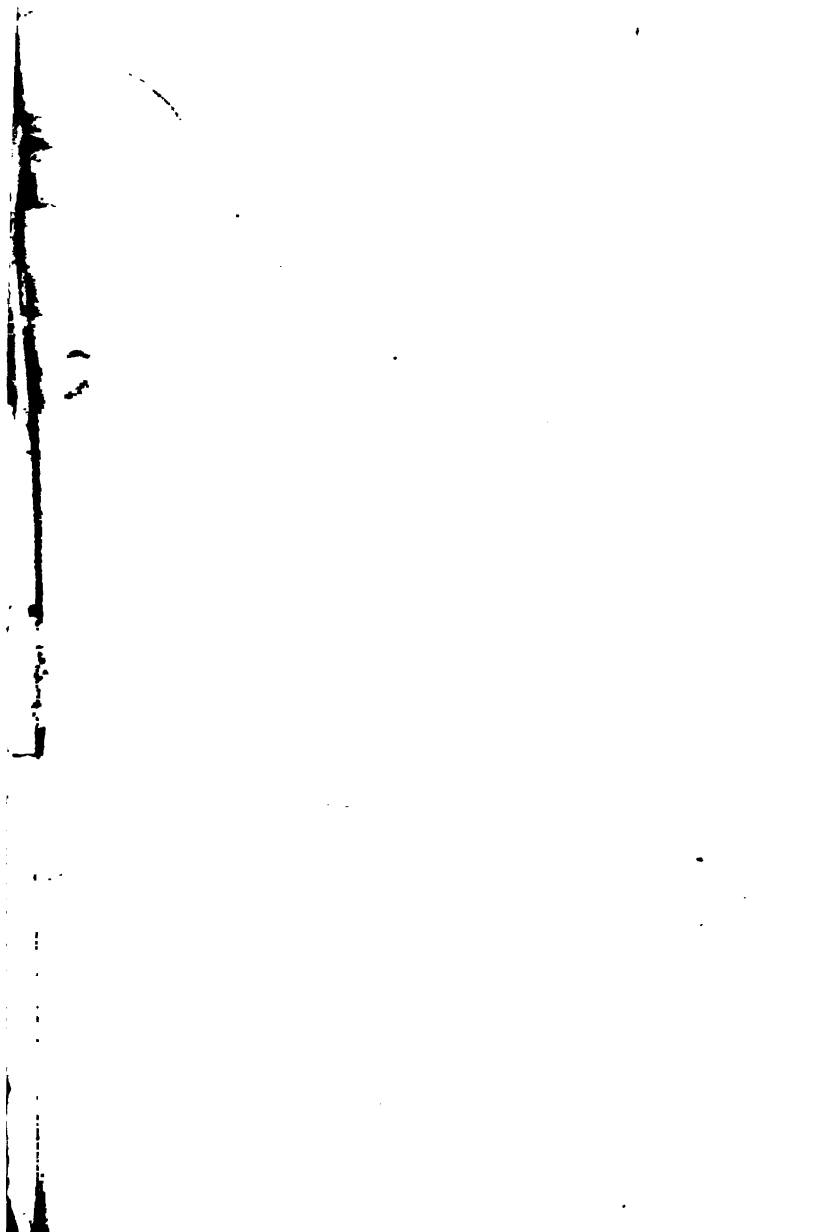
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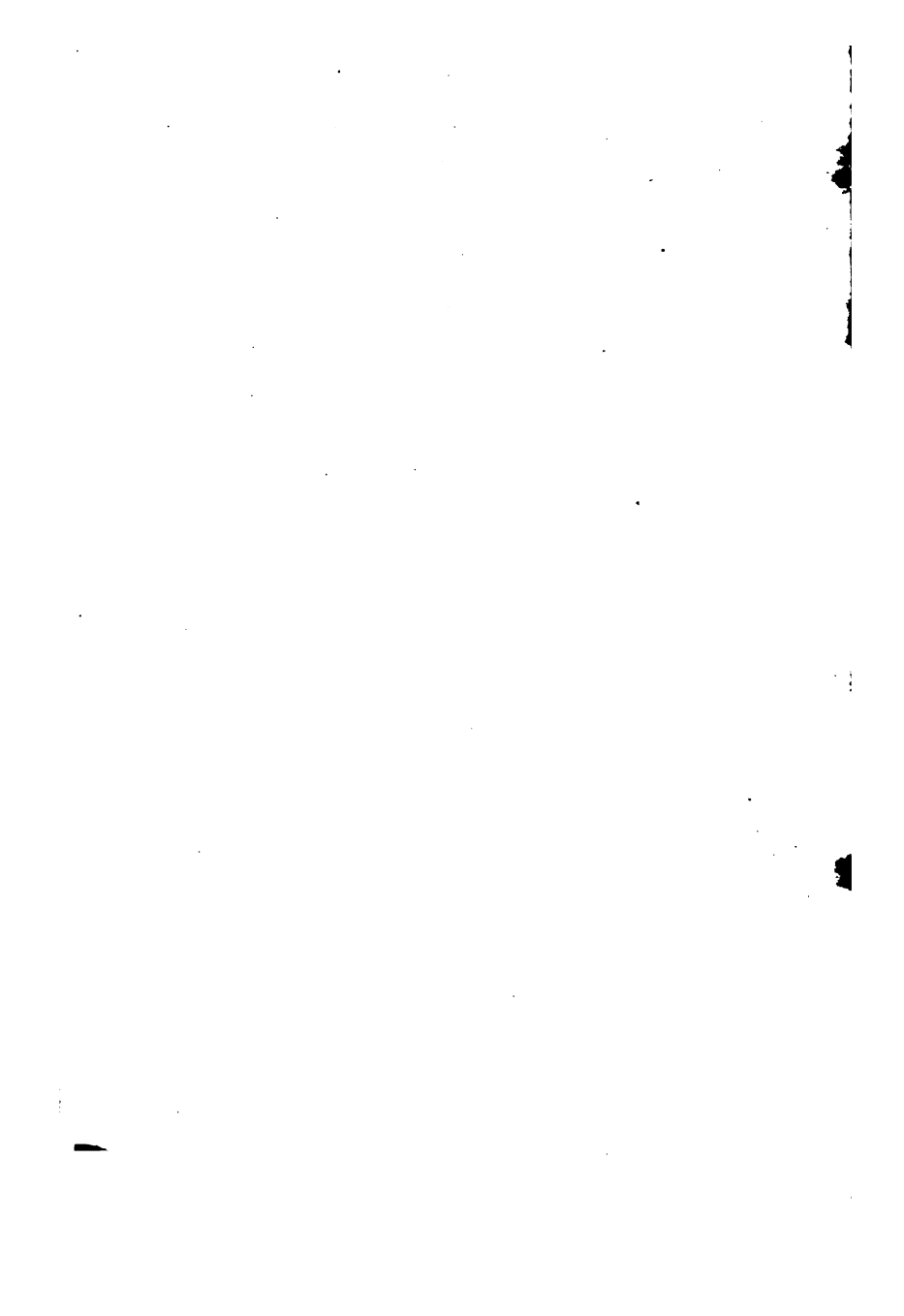


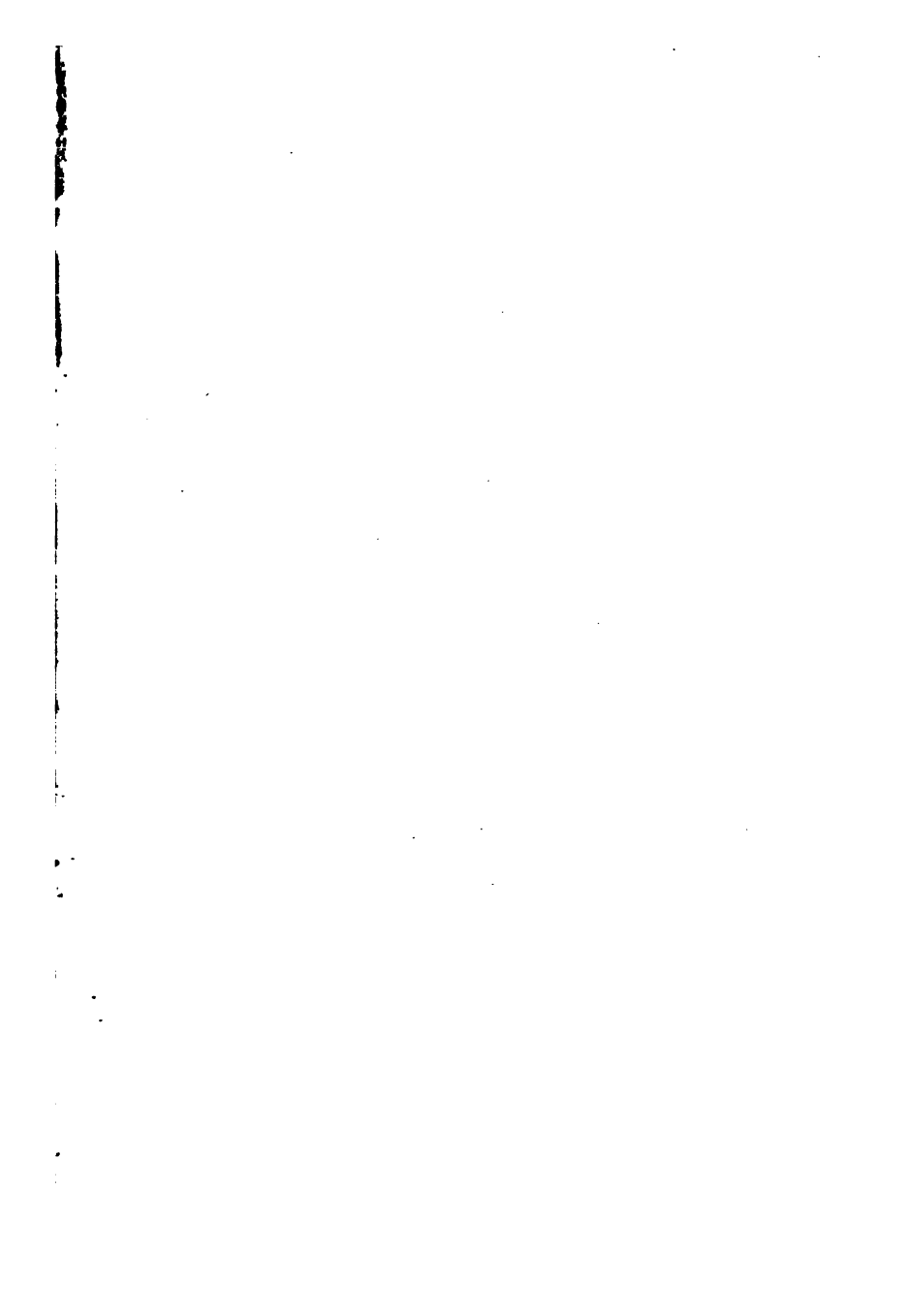
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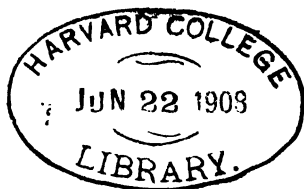
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POINTS IN MINOR TACTICS

COMPILED AND ARRANGED IN
AN ELEMENTARY MANNER
FOR THE INFANTRY ARM OF
THE NATIONAL GUARD
OF THE UNITED STATES

BY
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NEW YORK
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Bequest of
William A. Henry
of Brooklyn, N. Y.

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PREFACE.

THE object of this book is to place between two covers, *as a sequel to the drill regulations and guard manual*, some elementary information on minor tactics, gathered from a number of authorized text-books for the use of the members of the National Guard.

The book is addressed to infantrymen, and where passing reference is made to cavalry and artillery the reader can gain further information by turning to the authorities quoted.

The number of foreign references is to be explained by the fact that this country has had no serious experience of warfare for thirty years, during which time there have been great changes in armament and methods. Consequently, Americans, in considering military subjects, have been forced to find much of their recent information abroad.

But while acknowledging his indebtedness to foreign authorities, the writer wishes to express a particular obligation to Major Arthur L. Wagner, U. S. A., for the use of his standard work, *The Service of Security and Information*—the text-book of the army—which he authorized very kindly.

The writer also wishes to state that at different times he made extracts from various works in the form of manuscript notes for his private use without any reference whatever to the writer or book, and therefore he apologizes here for any non-recognition which may occur. He disclaims any originality, and has simply endeavored to make clear some of the duties which the citizen soldier must perform when soldiering in earnest, if he is to profit by accumulated experience.

The term "National Guardsman" is used to denote all active and trained volunteers, whether called State troops, militia, or designated by any other name.

THE MILITARY CLUB, NEW YORK CITY,
January 1, 1898.

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POINTS IN MINOR TACTICS.

PART I.

INTRODUCTORY.

EVERY now and then we find a misconception of the aim and object of the National Guard, even among members of the organization itself.

Any confusion on these points could be avoided by keeping clearly in view the expressed opinions of the statesmen who first pointed out the necessity for such a force.

At a time when every citizen of serviceable age was liable to be called on for military service, and when there was no *trained* volunteer force to furnish an effective nucleus, one President after another, beginning with Washington himself, pointed out the necessity of such a body as the National Guard.

Using the word "militia" in the broad sense of "all the available men in the nation," President Tyler said in 1843:

"In all cases of emergency the reliance of the country is properly placed in the militia of the several States; and it may well deserve the consideration of

Congress whether a new and more perfect organization might not be introduced—looking mainly to the volunteer companies of the Union for the present—and of easy application to the great body of the militia in time of war.”

Since the civil war, various States have acquired a trained citizen soldiery which has attained to a certain degree of proficiency in arms; but even in the States that are most fortunate in this respect there still remains much to be accomplished in the way of perfect organization, from top to bottom, and thorough individual training and discipline in the various lines of duty.

The one thing to be kept in view, if the original function of the National Guard is to be properly understood, is that it is essentially a military organization.

The United States authorities must rely upon the National Guard to supply a force already trained to re-enforce the small standing army, and together form the nucleus for large field forces.

But how can a body be the nucleus for an army unless it possesses in itself all the higher qualities and attributes of an army? Does our National Guard possess these qualities and attributes?

If it does not, may not one reason be the wrong conception that many members of the organization, as well as certain outsiders, have, as to its relation to the public service?

The most extreme statement bearing on this point seems to be summed up in the expression sometimes heard, "After all, we are nothing but a glorified police force."

A sentiment like the above is usually to be explained by a desire to excuse inefficiency, or is the result of an underestimation of the value of thoroughness in detail and all-round mastery of the less obvious duties of the service.

The fact that the National Guard is frequently called upon to do duty against a domestic enemy on the occasions of rioting during strikes, etc., does not affect the other fact that it is primarily intended to act against an external enemy; besides, when on such duty at home it is only made use of in cases where the local or municipal authority has broken down. The policeman has become insufficient to keep the peace before the soldier has been put under arms; once the National Guard is on the ground, the method of preserving order becomes a military and not a civil one. The National Guard no more becomes a police force by keeping the public peace than the regular army does when called out to protect the United States mails, or uphold the authority of the Federal courts.

The Guard has both a State and national function; it is the real guardian of the authority of the Commonwealth on one hand, and one of the defenses of the nation against an external enemy on the other.

There can be no doubt as to the efficiency of the

Guard as a means for preserving internal order, but it must be remembered that this sort of efficiency only affects the secondary function of the Guard as an auxiliary of the civil authorities. On the other hand, there is something more than doubt as to the state of preparation which the entire Guard would show if it had to take the field against a military enemy; and, at the risk of repetition, it must be remembered that it was with a view to this contingency that the organization was originally planned.

Everybody acknowledges the existence in this country, as in every other, of forces antagonistic to public order and established institutions, but as long as the men in the National Guard obey their officers there need be no fear of successful violence.

This sort of duty calls for comparatively little special training beyond discipline, as ordinarily comprehended, drill, and knowledge of how to shoot straight; but all this, while very necessary, only constitutes the preliminary training of a soldier.

There are two ways of teaching a soldier his business: one is by a thorough, disciplined instruction in times of peace in what he will be required to do in time of war; the other way is by putting it off until war time, when he will be taught it by the enemy—*at terrible expense.*

While the troops of the Guard throughout the country have occasional field days for the larger maneuvers, it is patent to competent observers that

the details embraced in the minor operations of war, as practiced on these occasions, are not generally carried out in the proper technical and practical way.

The operations are performed in a manner which would result in disaster in the face of a trained enemy. There is a decided lack of discipline, and above all of fire discipline, while the duties of advance and rear-guards, reconnoissance, and patrolling are apparently only half grasped; and it is common to see troops lose their heads under circumstances where they ought to be under perfect control. If this is the case where there is no danger, it is easy to imagine what would happen if the men were facing actual fire.

What, then, is the remedy for all this? First, a serious effort to master the details of the work that has to be known and done in the course of a soldier's duty; second, the absolute maintenance of discipline and obedience under all conditions of time, place, or circumstance. Then the troops would not only know what they had to do, and how to do it, but could be relied upon to do it. It matters little how well the troops are instructed if the element of thorough discipline is not "a part of the being of every soldier." So that, if the members of the National Guard were to realize thoroughly their individual importance, responsibility, and personal value as soldiers, and had not only a just conception of what was necessary to a proper performance of their duties

as such, but had also the knowledge of how to perform these duties as well, their work would certainly result in more pleasure to themselves, and the National Guard of this country would occupy a higher plane, and be of greater value as a bulwark of State and national authority.

Theoretical instruction is, of course, very necessary, but this is not sufficient. Instruction must be practical as well. In addition, there should be a spirit of willing and prompt obedience; a sense of personal responsibility and accountability that each soldier should be keenly alive to; a conviction that every man has a particular duty to perform, and that he possesses a distinct value as a unit that can not be wasted, or even lightly considered. Every man should be able to have confidence in himself, his officers, and comrades, and this will come when each individual member of a command feels that every other man is not only ready to do his duty thoroughly, but is qualified to do so.

Demoralization sets in when confidence is destroyed; the *morale* is lowered when incompetency becomes generally recognized. The most valuable and efficient soldier views his duties seriously, and is always earnest and faithful; he is as prompt and eager to do the small things that are necessary to the fulfillment of his duties, as the larger and more important ones. Little details make the soldier. A lack of appreciation of this fact accounts for much that is

still necessary of attainment before that measure of proficiency, which is within the limit of possibilities of the National Guardsmen, is acquired.

The National Guard may not be a drilled and disciplined body such as would compare at present with the regular army, but it is to a high degree a thinking body of men, and can act intelligently when properly directed. Therefore it must be remembered that this intelligence will largely make up for any lack of that automatic obedience which is the result of daily applied discipline in the regular army.

CHAPTER I.

CHARACTERISTICS OF THE THREE ARMS.*

Infantry.—The weapons of an infantry soldier are the rifle and bayonet. The use of the latter, however, is comparatively rare nowadays. With these weapons he can attack at a distance by fire-action, or at close quarters by shock-action. Infantry can get into action more easily than the other arms, and can act independently, whether in attack or defense, in motion or at rest, and thus, being more independent of circumstances, is less liable than either the cavalry or artillery to lose in efficiency. It is more easily and cheaply equipped, made efficient in less time, and maintained with less difficulty than its adjuncts, the cavalry and artillery.

Cavalry.—The cavalry soldier is armed with sword, carbine, and pistol. The force of cavalry lies in shock-action, in line, when in collision with the enemy; in detached action, as when operating in small groups; and in dismounted fire-action.

* Most of this information is borrowed from Shaw's Elements of Modern Tactics.

The hand-to-hand weapons are always the principal ones for cavalry; but as the combined action of man and horse may cease at any moment, the cavalryman can become efficient as a rifleman.

The principle governing this arm in battle consists in attack, and to be most effective the charge must be as impetuous as possible. The conditions of success are rapidity and surprise, with intensity of shock. Cavalry usually maneuvers in column, but fights in line or in echelon. As cavalry possesses great mobility, it can be quickly transferred from one point and used at another. In covering a retreat it is of especial value, as well as in all reconnoitering work.

Its flanks are its weak points. Hence, an attack on cavalry should be directed at a flank, and if possible while it is deploying.

It is easily thrown into disorder, is slow to rally, can act only on suitable ground, is expensive to equip, and only becomes efficient after long training.

Artillery.—The value of artillery lies in its fire-action. Its members are armed, for individual defense, with carbine, pistol, and sword.

The function of artillery in action is to prepare for and to support attacks, or to defend them. Its moral effect is very great.

When moving, or when limbered up, it is quite defenseless. It is effective beyond infantry range, and can destroy most material defenses or obstacles. It

is, however, cumbersome, complicated, and liable to accidents, requires considerable space and large supplies, and is not capable of being changed from position to position with the same facility as the other arms. It is the most expensive arm to equip, maintain, and keep efficient. Its projectiles are usually common shell, shrapnel shell, and case shot; star shell and incendiary shell are also used for special purposes.

Common shell is a hollow cast-iron projectile filled with a large bursting charge. It breaks into few pieces, and is employed at short and long ranges against troops in mass, and also in line, when an oblique or enfilade fire is possible. Its use is confined chiefly to destroying obstacles, shelling villages, etc., and to setting fire to combustible materials.

Shrapnel shell is filled with bullets which are set free by a small bursting charge of powder. Its effect depends on the velocity of the shell when bursting. Its limit of effectiveness is placed at about three thousand yards.

Case shot consists of a thin metal cylinder packed with balls. The case is broken by the discharge of the gun, and the balls are liberated at the muzzle, spreading over a considerable space. It can be used only up to about four hundred yards; its effectiveness is increased when the ground in front is rocky or covered with stones, as there is a liability to ricochetting and the scattering of splinters.

CHARACTERISTICS OF THE THREE ARMS. 11

Star shell is formed like shrapnel, but contains "stars" instead of bullets, which burn brightly when released from the shell and thus illuminate the ground. They are used for discovering the presence or position of the enemy, etc.

Incendiary shell is used for purposes indicated by its name.

Common shell differs from shrapnel because its destructiveness depends upon its bursting charge. It is used beyond shrapnel range, and is employed for shelling troops out of villages, houses, woods, or when behind obstructions. Its explosion creates a good deal of heat, and easily sets fire to houses, etc.

Case shot, being used only at close quarters, is rarely if ever fired over the heads of one's own troops, as its action is too uncertain and scattering.

CHAPTER II.

GROUND IN RELATION TO TACTICS.*

GROUND influences tactical operations by the manner in which it affects view and movement, and gives full effect and protection to each arm.

View.—Cover from view is obtainable from very gentle undulations to a far greater extent than those unpracticed in testing it would suspect, for men are apt to considerably underrate the height of physical features in comparison with their own height. Such cover is always of great importance in getting troops into position before serious fighting begins, in secretly transferring them from one point to another during action, and in facilitating surprises.

But cover from view that does not also protect from fire, such as hedges, etc., must be utilized with some caution, for men are apt to crowd behind it when no other cover is available, and if the enemy's fire be then attracted, loss ensues in proportion to the denseness of the occupants. Yet the feeling of

* See Clery's *Minor Tactics*, p. 117 *et seq.*

concealment tends to increase men's confidence, and the prospect of cover even from view encourages them to advance, so that it is on this account of value.

Movement.—Ground affects movement by extending or limiting the breadth of front on which troops can advance, and by the retarding influence that the character of the surface can exercise. Time is an all-important element in tactical combinations, and what is productive of delay may at any moment exert a dangerously disturbing influence. Reliable calculations may be based on the extent of roadway available, but the state of the surface may be so subject to alterations from weather, extensive traffic, etc., as to invalidate any calculations that ignored them.

In heavy clay soil even the best-laid roads become almost impassable in bad weather after a certain number of troops have traversed them. Thus, in 1815, part of Napoleon's force when in pursuit of the Prussians from Ligny took seven hours to move less than five miles. On the other hand, in light or sandy soil, water is quickly drained off, and the surface hardens again. Also, when the impassable state of the surface results from moisture, frost or continued cessation of rain may make such a district temporarily passable. In addition to the character and condition of the surface, the existence of streams, marshes, canals, etc., which render communication between different parts of a force difficult, also materially affect tactical operations.

Infantry.—Ground chiefly affects the action of infantry by the cover it affords and the extent of front it admits of. Both these points have become of increased importance lately, as cover to a certain extent is indispensable to avoid destruction, and breadth of front is essential to bringing the full force of infantry into effect. Minor features, such as fences, hedgerows, dikes, etc., are unimportant obstacles to infantry, while they afford it protection to a certain degree. But greater obstacles, such as streams, marshes, etc., impede its action seriously from the delay imposed by changes of formation to effect a passage at special points.

Hence, a cultivated country not too inclosed is the most favorable in attack. In defense, the country to the front can not be too open. In the first case, infantry gains a succession of covered positions, by means of which it comes on more equal terms with the defense; in the second, the infantry of the defense has a clear field to destroy the assailants as they approach.

All country that tends to restrict movement is favorable to infantry as compared with the other arms. Houses, farms, and villages afford advantages in defense to infantry only.

Cavalry.—When firearms admitted of cavalry approaching to within striking distance of infantry, ground could not be too flat or open for its action. But now, in such a country, cavalry must be kept at

so great a distance that little opportunity would be offered for its employment. To get within reach of the other arms, its approach must now be screened, to a certain degree, both from fire and view, for surprise will be one of the elements of success. This can only be effected by means of undulating or moderately broken ground. Yet, when cavalry finally comes into action, the ground can not be too open, level, and free from obstacles. A very precipitous or very wooded country makes the use of cavalry for fighting almost impossible.

Artillery.—The ground most suitable to the action of artillery is that where its own position affords extensive range, while that fired on possesses little cover. Elevated positions are therefore necessary, but in these great depression of fire should be avoided, as it is always a disadvantage. Obstacles in front are useful, to a limited extent, as they afford protection from sudden attack, and when in the form of a marsh, pond, or soft ground of any kind, they diminish the effect of the enemy's fire by holding fast any projectile that falls there. Hence a country moderately undulating, with long and gentle slopes, little wood or cultivation, good roads, and sound ground for the free movement of wheeled carriages, is the most suitable for artillery.

CHAPTER III.

MINOR OPERATIONS OF WAR.

ALL military history points to the fact that success usually depends on the employment of certain known tactical principles, while disaster follows their neglect.

These principles are few and simple in theory, and are the basis and guiding spirit of all maneuvers. At the same time, however, experience shows that these principles are as often disregarded or overlooked as they are difficult in application. Memory can not always be relied upon; hence we must trust *habit* and *instinct* to fulfil the duties which these first principles render obligatory, and which vary in detail in the changing operations of war. Habit formed, instinct is prompt to take intelligent action.

The lesson learned from a study of the Franco-Prussian War shows how even trained soldiers forgot these first principles, or disregarded them, and how the proper service of security and information was completely ignored at times; how the French cavalry, instead of scouting the country for information con-

cerning the movements, strength, and composition of the enemy, was held uselessly and criminally idle.

The battle of Spicheren * furnishes examples of what the smaller force can do by taking proper care to protect itself by the use of principles first taught in peace maneuvers, and made only more realistic in battle. We are told that while the French troops relied upon their past victories and traditions for success, and neglected to make use of the proper means for discovering the whereabouts, strength, and composition of the enemy, the Germans, on the contrary, had their patrols pushed **well** forward and to the flanks, and were ceaselessly scouting for information which, when gained, was promptly reported; and though deceived at first in their estimate of the strength of the enemy, owing to the dense woods covering the ground, still, the habit of employing these first principles of war, together with their superb and almost matchless discipline, made it possible to gain a victory when utter defeat and rout would have followed in the case of a similar force less well handled, trained, and disciplined.

Had the French commander taken the ordinary precaution to search the country thoroughly, he would have discovered how small was the force first opposed to him, and he might have turned the tide

* The Battle of Spicheren, by Lieutenant-Colonel Henderson, Professor of Military History, Staff College, England.

of this battle in his favor; but neglecting all ordinary precaution, he was utterly without information regarding the troops approaching him.

The work just referred to records the following on page 67: "On the march and in their bivouacs the French divisions were alarmed by the appearance of hostile scouts." Also on page 71 we find these words: "Never was the helplessness of a general without information as to his enemy more strikingly illustrated." So well known and familiar had these principles become to the German officers and men, so well trained were they in advance- and rear-guard duties as well as reconnoitering work, that it is recorded that not once during the entire war were they surprised by the enemy; they were ever prepared and ready for any emergency. Their faith in each other was complete, and was based on the knowledge that each man knew his duty and work, and could be relied upon to do it.

It is related that the garrison of Saarbrücken, consisting of 6 guns, 450 sabers, and 3,250 bayonets, resisted the attack of a complete *corps d'armée*, of 25,000 men and 90 pieces of artillery. Referring to this action, we quote the following: "So skilfully was the slender force of Prussians handled, that the engagement affords a most instructive example of a *rear-guard action*." *

* The *Italics* are the writer's.

This engagement goes to prove the value of and necessity for a thorough and disciplined training in minor tactics, and illustrations are multiplied by a reading of the accounts of this war, showing, on the one hand, how lack of information destroyed the full effectiveness of a superior force, while, on the other hand, the constantly accumulating reports from active, well-distributed, and advanced scouting parties gave the commander information most necessary for the best disposition of his force, and the consequent advantage when coming in contact with his surprised opponent.

One more reference, same book, page 136: "It was a gross and unpardonable neglect . . . not to have taken steps to have the roads beyond . . . constantly patrolled . . . and thus obtain information of the enemy's strength and whereabouts. This omission, more than all else, decided the battle against the French. So simple were the circumstances that it seems impossible that any soldier of standing, or even any man of common sense, should have neglected such precautionary measures. But it is by omissions of this kind, by disregard of the primary and most familiar rules of war, that battles are lost and great disasters brought about; and hence the great strength of an army so thoroughly instructed as was the German. The judgment of the generals might err, but officers and men were so perfectly acquainted with their duty that the traditional precaution which insures the

security of the troops from surprise, whether on the march, in the bivouac, in position, or during attack, was seldom overlooked. . . . Very necessary is it, therefore, that every officer who has command of a body of troops in the field, however small, should be so thoroughly imbued with a knowledge of these principles as to apply them, as it were, instinctively."

It might be profitable to note just here a few points taken from General Clery's *Minor Tactics*,* on the same subject. He says that the issue to which all military operations tend is a battle; that organization, equipment, and drill, all aim at the one result of making the soldier as efficient as possible, in order that he may take his place in the fight when the time comes. To engage an enemy with the best chance of success, superiority, both moral and physical, at the point of contact, is absolutely essential.

Moral superiority is derivable from strict discipline, better cause, previous successes, or similar influences. Its elements should be established and carefully cultivated in times of peace, while success will confirm and strengthen it in time of war. Physical superiority is dependent upon numbers, training, and weapons; but it is only decisive when it is fully developed—that is, when there is full co-operation of the whole force on coming into contact with the enemy.

* Page 1.

Thus it may be seen that organization, equipment, and drill, combined with moral and physical superiority, which involve strict discipline, are the factors to be counted on to attain the object of battle—victory, decisive and complete.

These principles or rules of war embrace, as has been seen, a knowledge and practical working experience of outposts, advance- and rear-guards, reconnoissance, patrolling, etc. There yet remains, however, one element to be more fully considered, without which victories are well-nigh impossible, and that is the element of *discipline*, the essential of success.

CHAPTER IV.

DISCIPLINE.*

It will probably be admitted without question that the average soldier in the National Guard has but an imperfect conception of the meaning of the word "discipline." He will in all likelihood recognize the fact that the difference between an army and a mob is created by it, but he will find the word discipline a term more easy to comprehend than to explain.

He hears doubts expressed, and sometimes participates in them, as to any good reason existing why he should maintain "high pressure" even during the busy intervals of military work and duty throughout the period of his service. Inexperienced and untrained, he does not know the effect and result of discipline, nor its vital necessity, and can not comprehend why restraints are laid upon him, seemingly

* The writer acknowledges his indebtedness to the works of Captain Stewart-Murray, of the Gordon Highlanders, Discipline, and Fire Discipline, for much of the information in this chapter.

greater than order and obedience require, and frequently he imagines it a kindness to have the restrictions binding him relaxed.

He fails, for obvious reasons, to realize that such relaxation is the cause of slurring over routine observances, and that it weakens the foundation of all that goes to make him effective when thoroughly imbued with its spirit.

This relaxation from a thorough discipline is, in a large measure, responsible for much, if not all, that is undesirable and subject to criticism in the State troops of our country, and it is certainly true that as a better and more perfect knowledge of discipline obtains and prevails throughout the Guard, and is put into practice, the greater will be the responsibility of him who willingly yields to any influence that will lessen his effectiveness.

As defined by many, discipline is a set of rules and regulations officially promulgated for the purpose of preserving order in a military body, and which needs not be strictly enforced so long as order is observed and maintained.

This, however, is not wholly true; the reason lies much deeper, and can be best expressed by quoting Captain Stewart-Murray. His conclusions coincide with those of the best authorities who have made this question a matter of studious reflection. He says:

"Its object [discipline] is to implant in the soldier the seeds of victory by teaching him the *habit of*

instantaneous and *instinctive* obedience. Discipline is the *long-continued habit*, by which the very *muscles* of the soldier instinctively obey the word of command, so that under whatsoever stress of circumstances, danger or death, he hears that word of command, even if his mind be too confused and astounded to attend, yet his muscles will obey. Toward this object all the regulations of discipline, however apparently irrelevant, will be found to tend."

This fact can not be disputed; every battlefield attests its truthfulness, and, as we are reminded by this writer, whether we turn to the conquering troops of Egypt and Assyria, and later to the Greek phalanx, and afterwards to the Roman legion, we find discipline triumphant over every foe. It was the same at Hastings—the Normans victorious over Saxon valor; it was thus with the Military Orders of the Temple and of St. John upholding the fortunes of the Cross; with the Scottish army defeating superior numbers at Bannockburn; and at Crécy, Poitiers, and Agincourt, where the better-disciplined troops conquered the French; and at Granson and Morat where the disciplined Swiss scattered the chivalry of Charles the Bold; and in the fierce struggle at the great siege of Malta between the victorious Knights of St. John and the Turks under Dragut the Corsair.

Again, during the Thirty Years' War, discipline triumphed under Gustavus Adolphus and the Swedish army; and during the wars of Frederick the Great,

discipline ever asserted its conquering powers and emerged victorious from a seven years' struggle against the combined forces of Europe.

In the great Franco-Prussian War of 1870-'71, when breech-loader first fought against breech-loader, we find discipline underlying all the triumph of the German army, and although the Germans outnumbered their opponents overwhelmingly on the general theatre of war, still, at points of contact they were often for long in inferior numerical strength; yet they were ever victorious. "To what but the ingrained habit of discipline was due their power to bear up successfully through the long hours of Woerth, Spicheren, Colombey, Nouilly, Vionville, and Mars-la-Tour, till re-enforcements arrived to turn those struggles into victories?"

Field-Marshal Lord Roberts, in his recent work,* tells the same story of discipline and valor. He writes, on page 252 *et seq.*, vol. i: "Like Norman when writing his narrative of the siege [of Delhi], I feel I can not conclude my brief account of it without paying my small tribute of praise and admiration to the troops who bore themselves so nobly from the beginning to the end. Their behavior throughout was beyond all praise, their constancy was unwearied, their gallantry most conspicuous; in thirty-two different fights they were victorious over long odds, be-

* Forty-one Years in India. Longmans, Green & Co., New York, 1897.

ing often exposed to an enemy ten times their number who, moreover, had the advantage of ground and superior artillery; they fought and worked as if each one felt that on his individual exertions alone depended the issues of the day; they willingly, nay, cheerfully, endured such trials as few armies have ever been exposed to for so long a time. For three months, day after day, and for the greater part of the day, every man had to be constantly under arms, exposed to a scorching Indian sun, which was almost as destructive as, and much harder to bear than, the enemy's never-ceasing fire. They saw their comrades struck down by cholera, sunstroke, and dysentery, more dispiriting a thousand times than the daily casualties in action. They beheld their enemies re-enforced, while their own numbers rapidly decreased.

"Yet they never lost heart, and at last, when it became evident that no hope of further re-enforcements could be entertained, and that if Delhi were to be taken at all it must be taken at once, they advanced to the assault with as high a courage and as complete a confidence in the result as if they were attacking in the first flush of exultation of troops at the commencement of a campaign, instead of being the remnant of a force worn out by twelve long weeks of privation and suffering, by hope deferred (which truly 'maketh the heart sick'), and by weary waiting for the help which never came." Thus ended the great siege of Delhi, 1857.

Prince Kraft zu Hohenlohe-Ingelfingen says: *
"Each soldier takes it for granted that any orders [given] will be the best possible. No one ever heard any argument about this, or any fault-finding. Such orders as came were accepted simply as fate. 'Such is the order' was always a magic word in our army. . . . It was ordered, therefore it was done." He further relates (page 269): "A French officer who in 1871 surrendered to us the fort of Issy said, when he saw a non-commissioned officer deliver a report in a very smart, soldierlike manner: 'Ah, I see very clearly why we are vanquished; it is owing to your discipline.'"

Nor must it be forgotten that the French army was composed of brave and warlike soldiers, led by gallant officers; but, although trained in "discipline in mass" and ceremonies, still, when the storm of bullets rained upon them and artillery fire became effective, and their ranks broken and decimated, their cohesion was lost, and by their confusion and disorder they showed their lack of thorough, individual discipline—the absence of the "instinctive and responsive habit of obedience."

On the other hand, the distinguishing characteristic of their opponents was shown in the advance of the Fusileers of the Seventy-fourth Regiment at Spichenen—from the Ehrental to the Rotherberg—

* Letters on Infantry. Translated by Lieutenant-Colonel N. L. Walford, R. A., p. 267.

across fifteen hundred yards of open ground, and under a heavy artillery and infantry fire. Not a shot was returned, nor was there a break in their ranks.

To quote Captain Stewart-Murray: "They [the French] did not understand that, owing to the dissolving effect of the breech-loader and the consequent extended formation of the infantry firing line, the individual soldier himself had become the ultimate unit of battle, and that discipline for breech-loading battles must be based upon a thorough individual instruction of each soldier both in discipline and fire discipline."

A few moments' reflection will surely show what would happen if this "habit of instinctive, automatic obedience to the word of command" were not a "part of the being" of every soldier. In the first general smash of fire, and in the ensuing pell-mell of a close fire-fight, his mind would become too confused to think; he would not know what to do; and not being habituated by practice to instinctively obey, his muscles would not respond. Bewildered, he would certainly fail in his duties and work; fresh units would not be formed or pushed forward,* and if not absolutely inert from the paralysis incident to fear or over-excitement, the soldier, if he were able to fire, would not be likely to know where to aim, or the necessary range.

* Infantry Drill Regulations, United States Army, par. 502.

"Shooting into the blue" soon exhausts the last cartridge, and the undisciplined, untrained, and confused soldier, repulsed and driven back, takes flight to the rear, mayhap only to be shot down.*

Discipline will save a soldier from such a fate by training his mind and muscles to obey instinctively, and by developing his fighting intelligence and teaching him the theory of minor tactics, so that even if left without a leader he can "fight on by himself."

One of the best instances of individual training and control is to be found in the history of the Boer war, which ended at Majuba Hill. The British force here found itself opposed to a body of absolutely self-reliant men. Every shot of the Boers was directed at an individual member of the enemy, each man determining the correct range, and hitting his object in nearly every instance. Demoralization among the British resulted not from any want of courage, but from a sense of their being picked off, man by man, by an enemy not to be coped with *en masse*, but each individual member of which was able to "fight on by himself." †

* In passing, it might be noted just here in reference to uncontrolled fire discipline, that during the war in Chili in 1891 some of the detachments expended, with magazine rifles, one hundred and eighty cartridges in from one half to three fourths of an hour. This was, undoubtedly, only occasioned by lack of fire discipline, which easily accounts for the wild, independent, and wasteful shooting.

† See Mayne's Infantry Fire Tactics, p. 415.

Thus history and experience teach us in all their pages how discipline has gained victories even in the face of almost hopeless odds, and this truth should be indelibly printed in large letters on the mind of every soldier—viz., “that discipline is all-enduring all-conquering, and the foundation of all success in war.” It must be cultivated in peace with a thorough understanding of its overwhelming importance, and become the essential of all military virtue. Until then the true meaning of the term “a soldier” is not appreciated.

In the armory, in camp, during rifle practice and drill, in fact, at all times, discipline should be insisted upon. The smaller the details to be attended to, the greater the necessity for exact, prompt, and cheerful fulfilment of the duty, for the reason that no soldier should ever permit himself to incur the habit of partial or slow obedience. And, in order to strengthen the habit of obedience, constant discipline can not be ignored even for a moment. Insubordination, destroying as it does all training and unfitting every soldier for his duties, should be thoroughly realized to be an offense of the greatest magnitude. Non-commissioned officers must look to it that they never pass over any act of disrespect or disobedience of any nature. The seed, once planted, easily bears fruit, and is difficult to eradicate; it is fatal to a soldier.

For his own interest, then, each soldier should be

impressed and penetrated with the habit of discipline—the habit of exact, instinctive, muscular obedience—which, properly cultivated in peace, will be his greatest help in battle. And it should be remembered, too, that the snap and smartness exacted in drill is but the first lesson in the discipline which involves perfect obedience at all times, in all places, and under all conditions.

Thus, when a soldier finds himself dominated and controlled by this spirit of discipline; when an order is considered sacred and elicits intuitive and instant response; when love for his organization fills him with enthusiasm; when he realizes the sense of final fitness acquired by faithful service and proper training; when he understands the meaning of “pride of arms”; when patriotic fervor thrills his every fibre; when his pride as a soldier causes him to give an outward manifestation of this feeling in smart and exact performance of the observances of military etiquette and obligations, and compels him to yield willing and ready allegiance to his superiors; when he has contributed his quota of efficiency to his corps—then may he well consider himself a soldier in its fullest and best sense, and a worthy and qualified representative of his country’s soldiery.

Recognizing, then, the value of the first principles of war, and the vital necessity for the strictest discipline, we will now take a glance at some of the duties connected with minor tactics.

CHAPTER V.

ADVANCE-GUARDS.

REMEMBERING the necessity that requires a force in the field to protect itself with covering detachments, whether halted or on the march, it follows that troops marching in the vicinity of the enemy can not proceed with too much precaution and prudence. They thus provide themselves with an advance-guard, rear-guard, and flanking detachments, in order to prevent surprise and the possibility of the overthrow of the column which would follow if the enemy were to come suddenly upon it with no time or space to make the necessary disposition for defense.

An advance-guard consists of a body of troops marching in front of a command to reconnoiter and protect its march. "Were the entire force kept on the alert it would be difficult to take it at a disadvantage, and impossible to take it by surprise. But constant alertness on the part of a command prevents that repose which is absolutely necessary to preserve it in a state of health and efficiency." *

* Lieutenant-Colonel Shaw's *Elements of Modern Tactics*, p. 107.

The following table, showing the ordinary minor operations of war, and their connection one with the other, is taken from Colonel Shaw's Elements of Modern Tactics.

AN ARMY IN THE FIELD IS ALWAYS IN A STATE OF				
MARCH	{ When its security is provided for, by	{ Detached bodies ;	{ Advance guards, Plank-guards, Rear-guards,	{ Infantry or cavalry, or Infantry and cavalry, or Infantry, cavalry, and artillery.
or	{ When its security is provided for, by	{ Reconnoitering bodies ;	{ Small or stealthy patrols, Strong patrols,	{ Of infantry or cavalry.
or	{ When its security is provided for, by	{ Reconnoitering bodies ;	{ Special reconnoissance, Reconnoissance in force,	{ Generally of all three arms.
or	{ When its security is provided for, by	{ Outposts ;	{ Guarding { Sentries or vedettes, Pickets, Supports, Reserves,	{ Of infantry or cavalry, or of both combined, or of the three arms.
or	{ When its security is provided for, by	{ Patroling	{ Visiting patrols, Reconnoitering patrols, Strong patrols,	{ Of infantry or cavalry.
BATTLE	{ When its security is provided for, by	{ Fire action ;	{ Artillery fire, Infantry fire,	{ commencing at say 3,000 yards from the enemy.
	{ When its security is provided for, by	{ Shock action ;	{ Infantry charge, Cavalry charge,	{ commencing at say 50 yards from the enemy.

In Advance.—"In an advance, it [the advance-guard] seizes advantageous positions, and holds them until the main body comes up; or holds in check the advancing enemy until the main body can deploy and take up a position to meet him." *

In Retreat.—"In retreat, it prepares the way for the main body, guarding and repairing roads, bridges, etc., sweeping away any partisans or guerrillas. If hostile troops have outmarched the column and are in front of it, the advance-guard performs duties of the same nature as in the advance." †

Duties and Objects.—In an advance, the duties and objects of the advance-guard are to observe and resist. In detail they may be summed up specifically as follows:

1. To cover the movements of the column and prevent surprise.
2. To gain information.
3. To provide for the security of the main body by giving it time to deploy and take a proper position for defense when the enemy is met with.
4. To clear the way so as to prevent the march of the main body from being delayed.
5. To seize and hold important points until the main body comes up, or hold the advancing enemy in check until the main body can deploy.
6. To support the reconnoitering cavalry and pro-

* Infantry Drill Regulations, 1891, par. 637.

† Ibid., par. 638.

vide a rallying point for it in the event of its being driven back by the enemy.

Division.—The advance-guard is divided into nearly two equal parts: the Vanguard, which is essentially the reconnoitering part of the advance-guard, and the Reserve, which represents the essential fighting unit of the advance-guard.

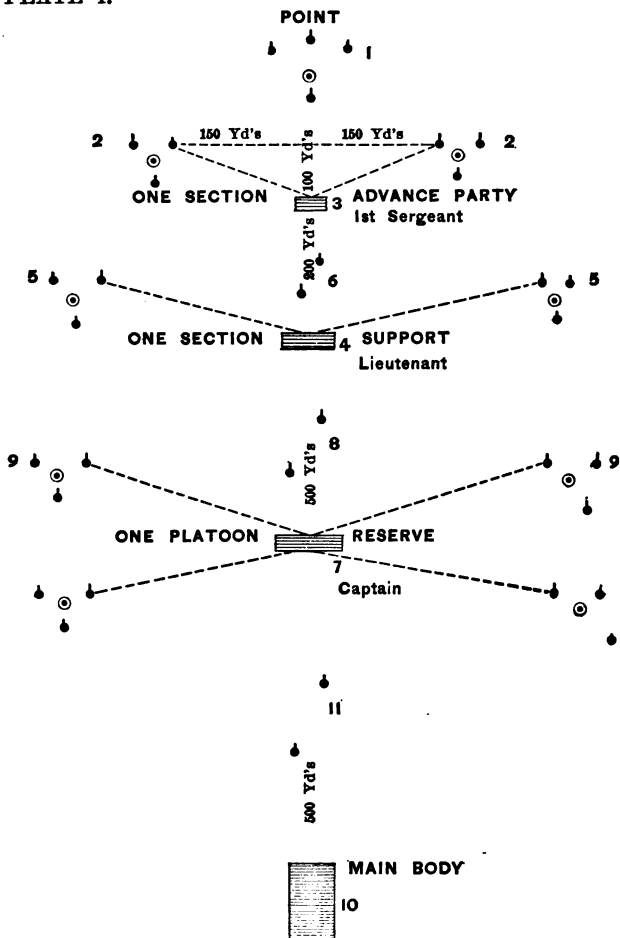
The vanguard is divided into the advance party and the support. The advance party furnishes a point, flankers and connecting files. The support and reserve furnish their own flankers; the latter, in addition, provides connecting files.

Examples of Advance-Guard Formations.—The illustrations, showing how a company of infantry composed of a hundred men may be formed as an advance-guard for a battalion, and how a battalion of infantry may be formed as an advance-guard for a regiment, are taken from Major Wagner's work. In their explanation his text has been generally adopted, and only altered to meet the objects of this book.

Advance Party (Company).*—The advance party (3)—one section—sends forward a point (1) composed of three or four men under a non-commissioned officer, and on either flank (2) a group of three or four men, about one hundred and fifty yards from the main line or route to the right and left in rear of the point. Each flanking detachment should be under

* See Plate I. Also, Advance-Guard Drill in appendix.

PLATE I.



Theoretical disposition of a company of infantry as an advance-guard.

the command of a corporal or old soldier, and would ordinarily march with two men in front and one in rear of the group leader. This formation may be changed according to circumstances.* The balance of the advance party follows one hundred yards in rear of the point.

Support.—The support (4)—one section—follows the advance party at a distance of about two hundred yards, and throws out two flanking groups (5) of four men each to its right and left somewhat farther out than the flankers of the advance party (2). These detachments may safely move out farther than those of the advance party, and will thus not only extend their field of view, but, if necessary, they can protect the outer flank of the advance party by their fire.

Connecting Files.—A connecting file (6) is detached from the advance party and marches between the advance party and the support, for the purpose of preserving communication and transmitting orders from one to the other. Bicycles may sometimes be used by the connecting files with advantage, when the roads permit.

Reserve.—The reserve (7) marches about five hundred yards in rear of the support, with a connecting file (8) marching between. The reserve may throw out flanking groups (9) to the front, or to the front and rear, or to one flank only, their positions

* See Chapter on Patrols and Reconnoitering.

being slightly farther out than those of the support. As a rule, the reserve should be kept intact, and flankers thrown out only when ordinary prudence would suggest this course. The reserve should ordinarily be kept in column of fours.

Main Body.—The main body (10) follows the reserve at a distance of about five hundred yards, with one or two connecting files (11) marching between them.

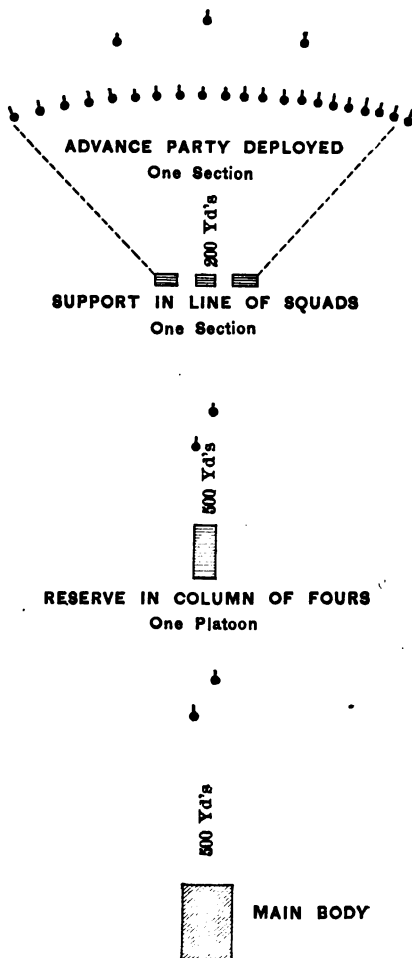
It should be a rule that no part of an advance-guard ought to lose sight of the body immediately preceding it. When necessary, as in a winding road, or in very rough or close country, extra connecting files should be used and withdrawn as soon as the nature of the country no longer makes their services necessary.

Distances.—The foregoing distances are variable, although those from the support to the reserve, and from the reserve to the main body, can not prudently be made more than six hundred and eight hundred yards, respectively, in the case of the small force—one company—under consideration.

Proportional Strength.—When a single company acts as an advance-guard, the rule for the proportional strength of the advance party and the support is modified to accord with the most convenient subdivision of the company.

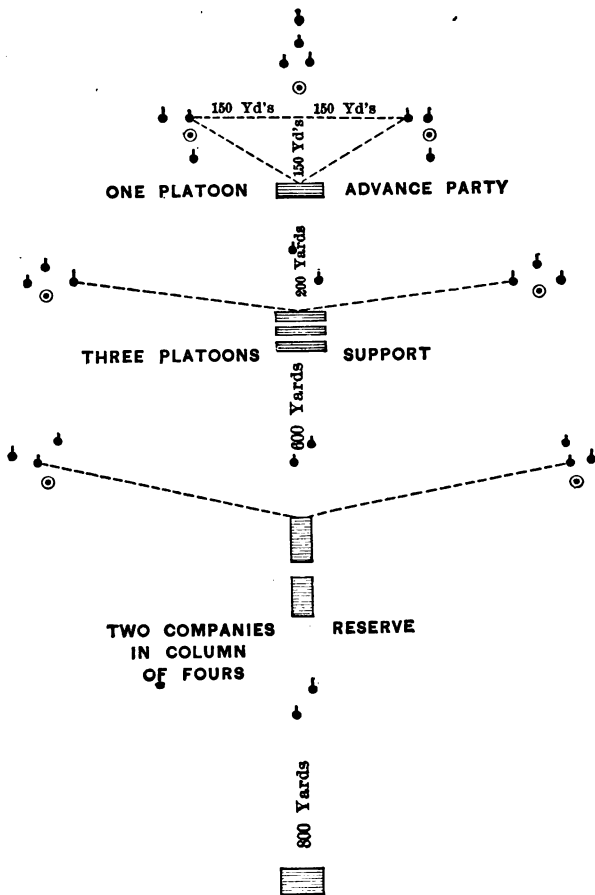
Flanking Groups.—Should the nature of the country render the use of flanking groups impractica-

PLATE II.



Theoretical disposition of a company of infantry as an advance-guard on open ground.

PLATE III.



Theoretical disposition of a battalion as an advance-guard.

ble, both the advance party and the support move forward entire, with the exception that the advance party is always preceded by a point.

Marching in Open Country.—When marching in an open country, the entire advance party may be deployed as skirmishers with considerable intervals, the support following in line of squads.* Both lines may be straight or echeloned back slightly from the centre toward the flanks.

Battalion Formation.—Should the advance-guard consist of a battalion of four companies, the first and second companies form the vanguard, and the third and fourth the reserve. The first platoon of the first company constitutes the advance party, while the support consists of the second platoon of the first company and the second company.†

The distances may be as follows:

From the point to the advance party..... 150 yards.

“ “ advance party to the support... 200 “

“ “ support to the reserve..... 600 “

“ “ reserve to the main body..... 800 “

Proportional Strength and Composition of a Large Advance-Guard.—The proportional strength and composition (infantry, cavalry, and artillery) of an advance-guard varies with:

1. The size of the main body.
2. The object of the advance.

* Plate II.

† Plate III.

3. The nature of the country, roads, and weather.

4. Distance, composition, and fighting character of the enemy's forces.

In a country difficult to traverse, and opposing an enemy inferior in strength and *morale*, the advance-guard would be less numerically than in an open country, or against strong, active assailants, or when it is the intention to bring on an action. The proportional strength of an advance-guard for a large force would be greater than in the case of a small force; and, *vice versa*, the smaller the force, the proportionally stronger should the main body be preserved.

No rigid rule can be given governing the strength of the advance-guard, but it should be always remembered that if it is too weak it can not possibly attain its object and fulfill its duties, while, on the other hand, if too strong, there will be a waste of energy. Added to this, there is a tendency for a strong advance-guard to become seriously engaged or involved in an enterprise not in accordance with the known plans of the commanding general. From one eighth to one quarter, and on the average about one sixth, of the whole force would constitute the strength of the advance-guard; but it should be greater when a position in front has to be seized, and less when the enemy is defeated or unenterprising. It is better strong than weak, otherwise the advance-guard could not facilitate the march of the main body, but, as just

said, the strength should not be such as to induce premature or precipitate action not intended by the general.

Distances from Main Body.—No fixed rules are anywhere given to cover the distances separating the advance-guard from the main body. Clery says: * “The interval [distance] that should exist between the head of the advance guard and of the column it is covering is also a variable quantity. A rough rule has been hitherto accepted that the distance must not be less than will enable the column to form for action before the enemy can reach it. As the time taken by the rear to form on a level with the head will depend on the length of the column, the interval [distance] would therefore be determined by this space; and as a rough rule this may still hold good, always subject to modifications to meet existing exigencies.”

Shaw,† in making the same general observations, adds: “This method, however, should only be taken to estimate the minimum distance, and in practice it will be often found that a much greater depth is necessary for the advance guard. In every case care must be taken that it extends so far to the front of the force which it covers as to enable its action to afford time to the general in command to decide

* Minor Tactics, p. 108.

† Elements of Modern Tactics, p. 111.

whether he will accept battle or not, and to form his force accordingly."

Wagner says: * "If the distance were too great, the advance guard might be forced into a heavy engagement while beyond the assistance of the main body, and might even be cut off by an attack upon its flank and rear. If, on the other hand, the distance were not great enough, time could not be afforded for the preparation of the main body for action."

It naturally follows, then, that great care and sound judgment are requisite in determining the distance to be maintained between the advance-guard and the main body.

The state of the weather and topography of the country must also be considered in fixing distances. In stormy or foggy weather distances should be decreased, and the front covered by scouting parties and flanking groups. The same may be said where good defensive positions abound. In open country, and when the weather is clear and the enemy is not in close proximity, the distances may be increased.

Duties of Advance-Guard Commander.—The commander of the advance-guard is usually with the reserve, but should go wherever his presence is most needed. He should represent, as nearly as possible, a good combination of courage, self-reliance, boldness, activity, and sound judgment, with a thorough

* Service of Security and Information, p. 31.

knowledge of his duties and the work before him. If practicable, it is best that he should be mounted, even in the case of a small advance-guard. He should be careful to note the topography of the ground over which he is passing, determine the best tactical use to be made of it, and form some clear idea or plan of what he would do in the event of meeting the enemy. He should have a clear understanding of the general's wishes, and live up to the spirit of his orders. He is responsible for the proper arrangement of the various parts of the advance-guard, and should inspect his command and divide it into proper parties and subdivisions, and give his subordinates the general instructions before the march begins. His first duty is, by timely support, to enable the vanguard to continue its work of exploration; his next duty is to support the vanguard if attacked. The distances between the vanguard and reserve should meet these requirements. As his work is to fight, if required, he should be prepared to come into action with the greatest advantage and with the least possible delay, and if the advance-guard is composed of different arms, be ready to make a prompt and advantageous disposition of it.

Usually he will have to do one of three things:

1. Move forward and drive the enemy from his position.
2. Take a defensive position, and hold it until reinforced by the main body.

3. If outnumbered, retire slowly, using every expedient to check the enemy until the main body can form for action.

He must give orders for the deployment or disposition of the reserve should the enemy be reported or signalled, or should the vanguard be engaged, and go to the front to reconnoiter. His duties require that considerable discretion be permitted him, and his instructions will probably be only general in character. His work being to prevent the main body from being surprised or attacked, or even interrupted in its march, he should not hesitate to drive in any of the enemy's small parties and scatter them. He should receive, or ask for, general instructions on the subject of engaging the enemy, so as to be qualified to shape his actions in accordance with the wishes of his chief.

Duties of Commander of Vanguard.—The commander of the vanguard is with the support. If advisable, he may assume command of the advance party. In this case he leaves the command of the support to the next in rank. If practicable, he, too, should be mounted and supplied with a good map of the region through which the troops are marching. Guides, if used, accompany the support, and are under the orders of the vanguard commander. The duties of the commander of the vanguard are:

1. To see that the point takes the proper road or direction.

2. To leave a detail of one or more men at cross-roads to guide the main body.

3. To send special patrols to examine suspicious points, or shelter for an enemy, such as woods, hamlets, buildings, etc.

4. To send special patrols to watch or oppose the enemy's patrols, either seen or anticipated.

5. To provide for necessary repairs to roads, bridges, approaches to fords, etc.

6. To transmit promptly information gained to the commander of the advance-guard, testing its accuracy without delaying its transmission, if possible.

7. To provide against unnecessary delay in the march of the column.

The support replaces men of the advance party who may be relieved or disabled. Scouts bringing in important information are sent, if practicable, to the commander of the advance-guard, and their places in front are supplied from the support. Should the scouts, thus sent back, be retained with the reserve, men must be sent forward to the support from the reserve, to replace their number. If for any reason scouts are returned from the reserve to their former posts front, then those men who were forwarded to supply their places in front are returned whence they came. The strength of the point and flanking groups must be maintained, if possible, by the commander of the vanguard, as they constitute the eyes and ears of the advance-guard.

Duties of Chief of Advance Party.—The chief of the advance party should have a clear and proper idea of his duties and what is expected of him, and carry out his instructions faithfully. He should see that his men are vigilant, watchful, and prompt in reporting any news or information they may gather or gain while advancing or reconnoitering. He should feel the great responsibility of his position and impress his men with a sense of their accountability, seeing to it that they are carefully instructed in their several duties, and thoroughly understand the signals.*

Halts.—During a halt the advance-guard reconnoiters the ground and guards all approaches. If halted for a brief time only, each part of the advance-guard remains in its place. The reserve may be allowed to fall out, but the support and advance party stand either at "Rest" or "At Ease," according to the necessity for watchfulness consequent to the proximity of the enemy. An officer should be detailed to get the best view obtainable from the highest available point. If the halt is to be protracted, a good defensive position should be occupied, and the main body disposed so as to provide for prompt and advantageous deployment.

While halted, men are not allowed to wander or scatter; the formation of the march should be preserved. Water should be brought to the men by parties detailed for this purpose.

* See chapter on Patrols and Reconnoitering.

PLATE IV.

Sending Detachment.	Location.	Day.	Mo.	Hrs. Min. A. M. or P. M.
Received				
To				
Detachment No. _____		Report No. _____		
Received _____		Hr. _____	Min. _____	m. 189 _____
(Name) _____		_____		
(Rank) _____		_____		

Form of report.

Reports.—Reports should give accurately that which has been observed or ascertained. Mere hearsay information must be described as such. In reporting the enemy's presence or movements, his composition and approximate strength should be given, if possible; also the direction in which he is moving, and the time and place where he was seen. In special cases, where specific information is desired, special reports are rendered covering the kind of intelligence wanted. Reports may be either verbal or written; if verbal, they must be intrusted to an intelligent man and repeated by him before setting out. In dangerous country, and when watched by the enemy, verbal reports are preferable; they should be sent in by several men, each taking a different route. The necessary qualities of a verbal report are accuracy, brevity, simplicity, and clearness; for a written report the same, with legibility and correct spelling of proper names. A convenient form of report reduced to one quarter size is herewith submitted. It is taken from Major Wagner's work.*

Entering Villages, Defiles, and Woods.†—Villages should not be entered by the advance-guard until it has been first ascertained whether or not they are occupied by the enemy. The leading files approach

* Plate IV.

† Details for this work will appear in the chapter on Patrols and Reconnoitering.

cautiously, moving through the village, during which time the flanking parties reconnoiter around the outskirts or outer edge. Pending this examination, the remainder of the advance-guard halts at some distance from the village. Similarly, a defile inclosed by heights should not be entered until the heights have been explored by the flankers, after which the leading files of the advance-guard go through the defile, if a short one, before being followed by the support. If the defile should be very long, the remainder of the advance-guard would follow at such distance and in such formation as would be expedient. Woods within touch of the line of march, capable of hiding an enemy, will be investigated before the advance-guard passes them.

Rivers.—On approaching a river, the passage should be inspected carefully, and, if requiring repairs, should be restored for the main body. The vanguard crosses over without delay, and takes up a defensive position which will cover the bridge or ford from the fire of the enemy.

Engineers.—All minor obstacles to the advance of the column should be removed by the advance-guard as far as possible. Repairing roads, bridges, etc., usually requires special parties detailed from the force in the rear. Engineers are sometimes attached to advance- and rear-guards for the purpose of attending to technical work which requires trained and skilled labor.



PLATE V.

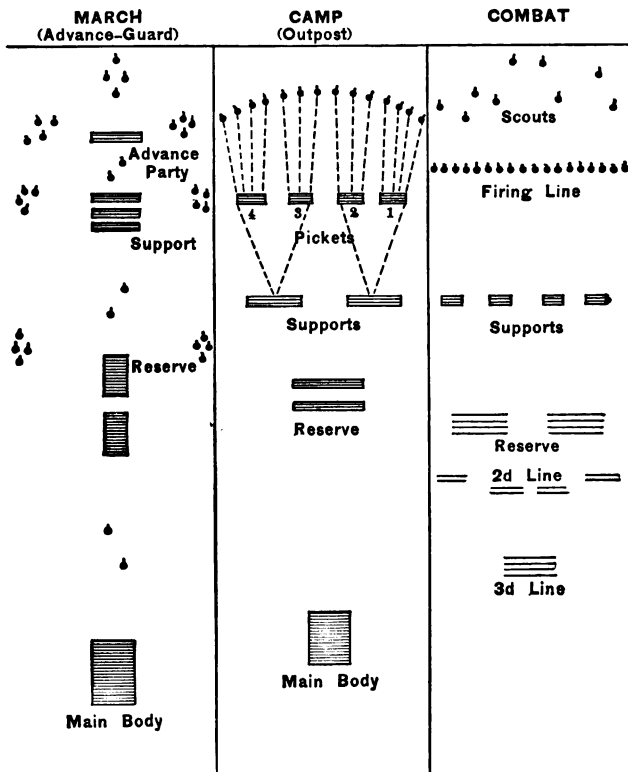


Illustration of the unity of the service of security.

Buildings.—Buildings in the vicinity of the line of march should be inspected by the leading files of the advance-guard; also large dwellings or buildings at a distance should be examined by a special patrol detailed for the purpose, thus making sure that no enemy is concealed in them.

Advance-Guard as Outpost.—At night the advance-guard may perform outpost duty. It should be relieved from this work if it has been fighting during the day, and fresh troops sent to relieve it if practicable. When cavalry forms part of the advance-guard, it should be withdrawn at night and sent to the main body. If outpost duty is not to be performed by the advance-guard, it must keep out reconnoitering patrols, and hold the ground until the detail for outposts is in place. Plate V explains “the tactical idea governing the arrangement of the advance-guard in depth. On halting at night, the advance party and its flankers naturally become the sentinels of the outpost. The remainder of the vanguard would furnish pickets and supports, and the reserve would still be the reserve of the outpost. In formation for combat, they naturally become scouts, chain, supports, and reserve, to be modified at the will of the commander-in-chief.” *

A few moments can be profitably spent in fixing firmly and clearly in mind the foregoing tech-

* Pettit's Elements of Military Science, p. 51.

nical idea illustrating the unity of the service of security.

Flank Guards.—Flanking detachments are taken from the main body when the operating force is large. They vary in size and composition according to circumstances, and may be composed of a small force of infantry or cavalry, or both, or of a large force of all arms.

Flank Marches.—In a flank march, flank guards assume great importance. Their formation would be similar to an advance-guard. Flank marches being exceedingly dangerous enterprises, they are usually conducted in light marching order, and are rarely made to a great distance. The force so marching should be ready to form for action promptly, and would not be placed as far from the flank of the column as an advance-guard from the head of the main body. In a flank march it may be necessary for a flank guard to have advance, rear and flank guards when the force acting as such is considerable and covering a large body of troops.

Retrograde Movement.—When the forces are in retreat, the duties of the advance-guard of the retreating forces are not very arduous, and it need not be very strong. The relative strengths of the advance-guard and the rear-guard are usually reversed in a retrograde movement. It must repair roads, bridges, etc., and remove obstacles. If the enemy should succeed in getting around the flanks of the command,

the advance-guard must push ahead and hold bridges, defiles, and villages on the line of retreat. If the inhabitants are hostile, they must be prevented from opposing any obstacle to the progress of the command. Small parties of the enemy's cavalry must be driven in or dispersed, and the most practical routes of march selected. Engineers should accompany advance-guards in retreat.

Advance-Guard Patrols.—Advance-guard patrols consist of two or more men. They are used for the purpose of investigating places more or less distant and not covered by the advance party. They should take advantage of all commanding points to observe the country, and endeavor to see everything without being seen. They must not lose communication with the body from which they are sent. Information obtained should be speedily transmitted by pre-arranged signals, connecting files, signalers, or couriers. These patrols should receive specific instructions.

Advance-Guard of all Arms.—Although it is outside the scope of this book, it may be useful just here to quote Major Wagner's remarks in regard to the advance-guard when composed of all arms. He says: *

“To perform its functions thoroughly, an advance-guard should be composed of all arms. Recon-

* Service of Security and Information, p. 43 *et seq.*

noitering duty can be performed more efficiently and more easily by cavalry than by infantry—more efficiently because a cavalry group can safely push much farther away from the column than an infantry group can, and the field of observation is thus extended; more easily because a trooper can with comparative ease reconnoiter to a degree that would exhaust a foot soldier. All European authorities recommend the use of cavalry as reconnoiterers, but prescribe that the support should consist in part of infantry to supply the necessary resisting power. In our service this is not in general necessary, as our cavalry has enough resisting power to carry out the delaying action of the support; and nothing but the lack of sufficient cavalry should necessitate the adoption of a composite support. Indeed, it is, in most cases, a great mistake so to combine cavalry with infantry as to tie the former down to the pace of the latter. The cavalry should ordinarily be given great latitude in pushing forward, for its great object is to gain information; and even when it constitutes the entire vanguard of a composite advance-guard, no attempt should be made to fix the distance between the support and the reserve. If the cavalry push far ahead, the reserve should throw out an advance party with point and flankers. If pressing closely upon the enemy, the cavalry will probably be delayed enough by exploration and skirmishing to reduce its progress to the pace of the infantry reserve.

“ Artillery is of great value to the advance-guard in preparing the way for the infantry attack and in compelling the enemy to deploy at a distance. Light field batteries only should be used with the advance-guard, mobility being essential. When the advance-guard is specially strong in cavalry, a battery of horse artillery should be attached to it.

“ The guns of a battery attached to the advance-guard should be kept together, any subdivision being generally a mistake. Under exceptional circumstances, part of the guns may be with the vanguard (marching with the support); but in such an advanced position the artillery would be liable to suffer from the enemy's infantry fire at short range, and would be exposed to capture by sudden assault. When the front is restricted and the country is hilly, part of the guns may be with the vanguard, for the enemy could find advantageous positions from which to bring guns to bear upon the advance-guard, and would have to be opposed by artillery; and in such a country the guns would not be greatly endangered by their forward position, as the enemy could advance only on a narrow front. In a large advance-guard (such as that of an army corps) a battery might safely march at the rear of the support. But, as a rule, all the artillery of the advance-guard should generally be with the reserve, and should be preceded by a small force of infantry to prevent it from being taken at a disadvantage by sudden attack. In

any case the delay in bringing artillery into action from the reserve would be so slight that but little would be gained by having guns with the vanguard. As the guns should come into action within artillery range, but beyond infantry range, of the enemy's position, they would generally be nearer to their proper position if with the reserve than they would be with the support. The battery commander accompanies the commander of the advance-guard on the march and in reconnoissance of the enemy, and receives his orders as to bringing the battery into action."

Compliments.—Advance-guards, as a body, pay no compliments. Individual soldiers salute when addressing or addressed by an officer.

CHAPTER VI.

REAR-GUARDS.

Rear-Guards.—Rear-guards, as in the case of advance-guards, are of two kinds:

1. To a force advancing against an enemy.
2. To a force retreating before an enemy.

In the first case the duties are principally confined to guarding the baggage and rear of the column from attacks by the enemy's partisans, and to measures of police against stragglers and marauders.

In the second case the duties are much more serious and difficult, and consist in delaying the enemy's advance so as to allow the main body to make its retreat without check or interruption. As regards the rear-guard in its first aspect, Field-Marshal Lord Wolseley remarks * that no more disagreeable duty, involving sheer hard work without excitement or glory, can fall to the lot of officers and men. Waiting about, sometimes for hours, until the column has started, and the last of the impedimenta has moved off, and then to follow in the dusty wake and get into camp long after every one else has made

* Soldier's Pocket Book.

himself more or less comfortable, are petty trials which make this duty unpopular even in peace maneuvers. While on service, when approaching the enemy, the case is worse, for, in addition to other discomforts, the rear-guard is debarred from the chances of distinction and the excitement of action enjoyed by the advance-guard. But, like all other duties, it must be performed in a soldierlike spirit, and officers especially should make the best of it as an example to their men.

We have already seen, in the case of an advance-guard, how necessary it is to cover the march of a column and protect it from surprise and sudden attack. It becomes still more imperative that similar precautions be taken during a forced retreat, as a retrograde movement, in addition to other dangers, produces demoralizing effects. Under these circumstances a prompt and vigorous pursuit by a victorious force should scatter and disorganize the enemy and prevent their reorganization or effectiveness for a long time; while, unless the vanquished force has been actually routed, or "the quality of the troops be very bad," all that they require to again become formidable is time and relief from a too close pursuit.

To protect a force in retreat from incessant attack is the province of a rear-guard. It may not appear clear, however, as Clery points out,* "how a

* Minor Tactics, p. 210.

fraction of a force can arrest the enemy's advance, when the whole is retreating from inability to cope with him. Nor would this be possible were the pursuit but a continuation of the battle. But it seldom happens that this can be the case, as the exhaustion of the victorious side is usually so great, added to the approach of darkness, that even when very superior in numbers, immediate pursuit is seldom entered on with much vigor. . . . The situation of the retreating force must therefore be unusually bad when a rear guard can not be extemporized, under cover of which the main body will reorganize while it retires."

Thus it is clear that caution must be used when advancing in pursuit of a defeated enemy, if sufficient time has been allowed him to reorganize; for his movements then may be due to other causes than a desire to escape a renewal of the fight, and, if falling back on re-enforcements, he might be able to resume the offensive suddenly if the opportunity offered. The same authority points out that the force that a rear-guard will usually have to contend with first will be probably either the enemy's advance-guard or some special detail of troops sent to the front to harass it; but a properly organized rear-guard would in all likelihood have little trouble in dealing with the latter. In the first case, however, the difficulties would be greater, owing to the enemy's main body being close at hand to support its advance-guard. Still, in most cases, when the disparity between the opposing forces

is not too great, it will be found that the strength of the advance-guard of one will be about equal to the rear-guard of the other, and thus the retreating force would have the advantage if placed in a strong position; but even then this advantage would be temporary and quickly vanish, for the reason that the enemy would be certain of approaching support, while the rear-guard would suffer from the disadvantage of increasing distance from its main body, and thus become momentarily weaker.

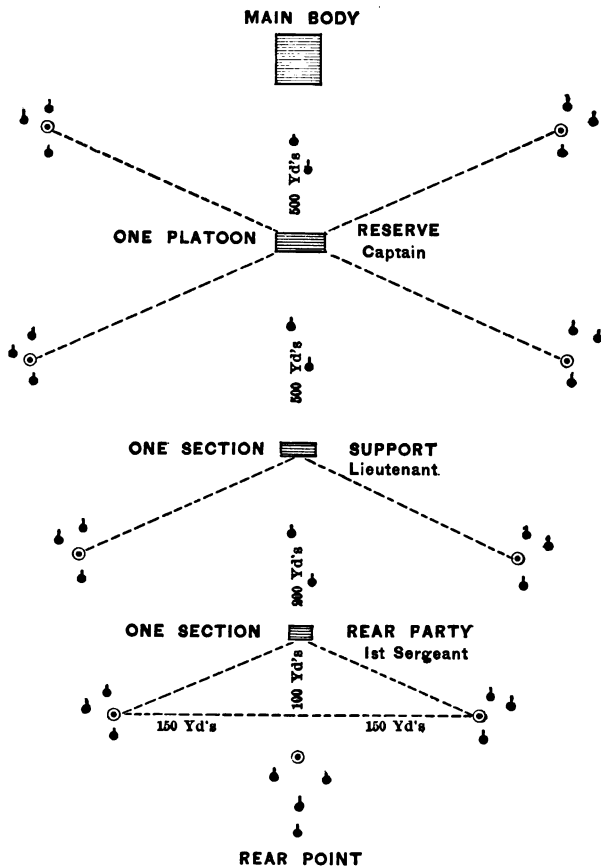
Formation.—The formation of a rear-guard is that of an advance-guard reversed. Taking a company of infantry—one hundred men—as an example, the reserve, one platoon, would march about five hundred yards in rear of the main body, followed by the support—one section—at about five hundred yards; the rear party follows about two hundred yards in rear of the support, and the point about one hundred yards in rear of the rear party.*

Major Wagner says: † “Flankers are thrown out as in the case of an advance-guard, but they are more numerous, and the line joining them is a more pronounced curve, for the reason that flank attacks are more to be feared than in the case of an advance-guard, and the flanks must therefore be more carefully covered. In an advance, an attempt against a flank of the advance-guard might easily result in the

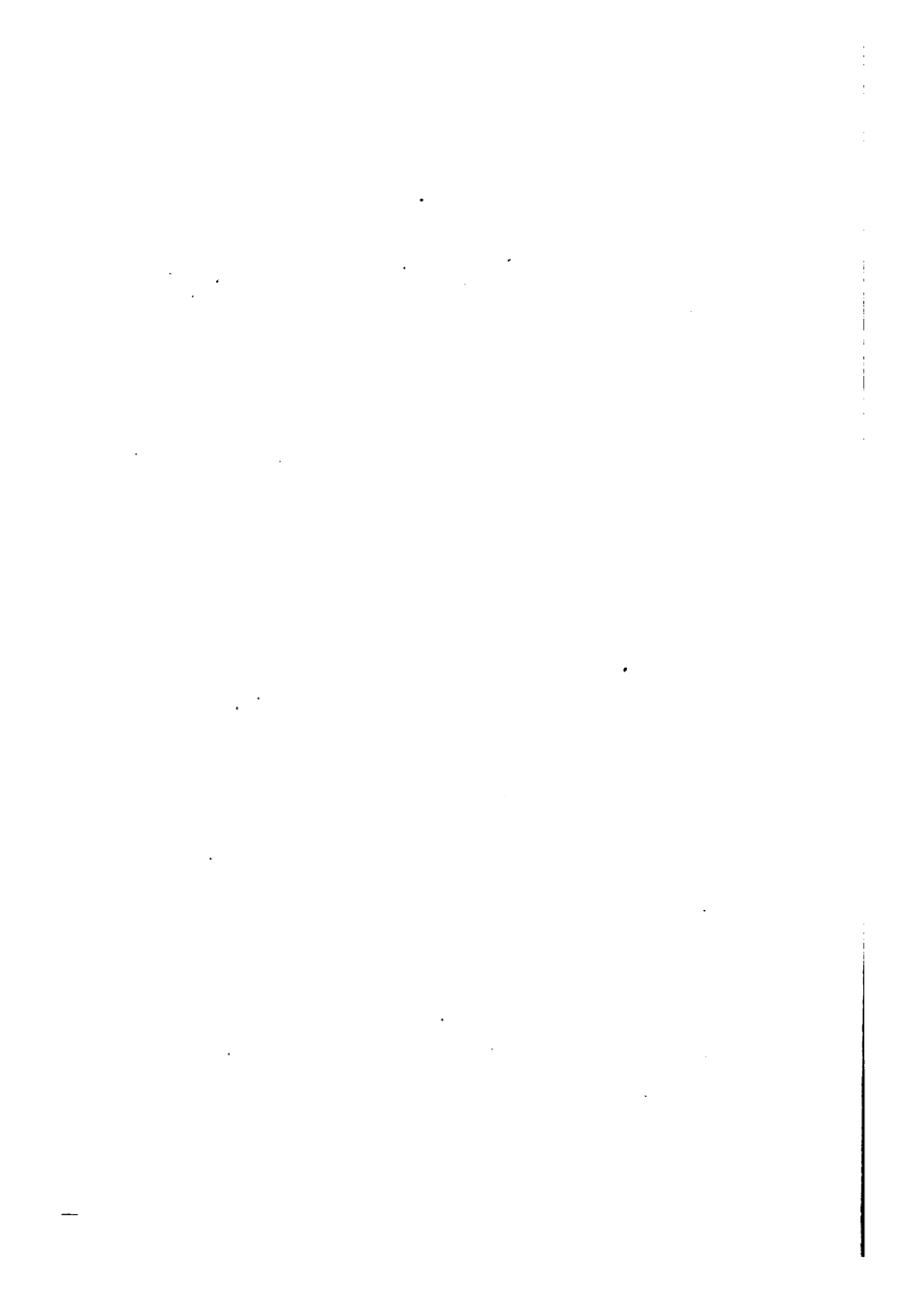
* Plate VI.

† Page 203.

PLATE VI.



Theoretical disposition of a company of infantry formed as a rear-guard.



assailing troops being themselves struck in flank by troops from the main body. But in a retrograde movement the main body is moving away from, instead of towards, the covering detachments, and thus a flank attack upon the rear-guard must be met by the rear-guard itself, or else the main body must halt and march back to its assistance. According to circumstances, a portion or the whole of the rear-guard will march in readiness for action."

The reserve may sometimes be formed in two parallel columns, when the country is favorable; it throws out flankers similar to the support, there being two groups on each side, one placed in advance of the reserve and about mid-distance from the main body, and the other about an equal distance towards the support—all well extended out from the flanks and uncovering the groups in rear.

Communication.—The several parts of a rear-guard must provide for communication with each other as explained for an advance-guard, furnishing such connecting files, signalers, etc., as may be necessary, and the route of the retreating force must be indicated so that the several parts of the rear-guard in rear will not go astray. Details from the main body should be left at cross-roads or doubtful localities where a mistake might be made in taking the new direction, and ordered to join the main body as soon as the proper road is known by the rear guard.

Strength.—The strength of a rear-guard and its

composition depend on that of the whole force. It corresponds generally with that of an advance-guard on a forward march. It is affected by the same considerations of ground, weather, etc., as well as by the strength, composition, and character of the enemy.

In deciding what its strength should be, care and good judgment should be exercised, as it would uselessly fatigue troops in this exhausting duty if too large a force were employed, and would frustrate the object of the retreat—viz., to place as many men as possible in safety; while, on the other hand, if it was too small, it would be driven in and hustled upon the main body, and might throw it into disorder. The demoralizing effect upon troops of the mere knowledge that they are retreating from an enemy is very great in itself, and should the rear-guard be unable to withhold the advance of the enemy's pursuing force, and be driven upon the main body without giving it an opportunity to form, the retreat would result in rout and disaster.

Morale.—In detailing troops for rear-guard operations, the very best available should be selected, as the duties incident to successful rear-guard work require skill, resource, pluck, and determination. Those organizations full of zeal, spirit, and confidence, whose *morale* is the highest, are the ones most required.

Distance from Main Body.—Retreats are usually made as quickly as possible, during which time the rear-guard looks out for the enemy and makes every

effort, when encountered, to delay him. It thus becomes difficult to give any positive rule, but, generally speaking, the distance between the various parts of a rear-guard correspond with those of an advance-guard from the main body. At night, rear-guards draw nearer the column, "especially if the night is dark, the enemy near, and the inhabitants inimical."

Halts.—It is provided that when a rear-guard halts it should select a good defensive position and establish outposts. A good field of view is essential, and if halted for the night the rear-guard should be relieved by other troops, which would then be posted as the outpost.

Flanking Patrols.—Vigilant and energetic patrolling must be carried out, especially on the flanks. As Gen. Clery shows,* the danger a rear-guard has to constantly provide against is being turned, so that it should reconnoiter its flanks widely and vigilantly; for to be cut off would not only entail the loss of the troops engaged, but the possibly still greater evil of exposing the main body to surprise. During the march, safety must be provided for by flanking parties.

Major Wagner points out that,† "finding a firm front opposed to all his direct attacks, [the enemy] will undoubtedly attempt to cut in on the flanks, where, in fact, always lie his most promising hopes of

* Page 219.

† Page 206.

success, for if he cause the rear-guard to form front to a flank, any assault by which it can be pushed off the road will uncover the rear of the main body, and will be only less disastrous to the retreating army than the destruction of the rear-guard itself. Prompt notification of attempts against the flanks should be given by the patrols (who are often warned of them by a diminution of the enemy's forces following in rear), and the rear-guard should then endeavor with celerity to slip past the menaced point; failing in this, it should form a strong front toward the attacking force." So that, should the pursuit be but indifferently carried on, even then contact with the enemy should be maintained, for, though apparently ceasing direct and vigorous pursuit, he may be trying to forestall the rear-guard or main body at some point farther back by moving by a lateral road. "Contact with the pursuing force should not be lost, but its movements should be constantly watched, otherwise the army might be flying from a mere phantom, or it might be deceived as to the objective point of the enemy's attack." *

Resistance.—The amount of resistance to be offered by a rear-guard in retreat is naturally determined by the orders received by the commander of the rear-guard. Where time is all-important, strong positions, such as defiles, etc., should be occupied,

* Service of Security and Information, p. 214.

and the enemy's advance held in check. But such positions should not be held for the purpose of *waiting* for the enemy. This would cause too great a separation from the main body, which is dangerous, and occasions loss of valuable time. As already pointed out, the enemy might relax his direct efforts in the rear and turn his attention to the flanks, in which case waiting in a position for any length of time would jeopardize the rear-guard, and possibly result in its being cut off from the main body and lost.

Duties of Commander of Rear-Guard.—The commander of a rear-guard to a retreating force holds one of the most important positions in an army. He should be not only a man of experience, but a man of determination, prudence, courage, and resource, and possess a quick eye to perceive such opportunities as, if taken, will operate in delaying the advance of the enemy. Every expedient must be used, and (when not assisted by an officer detailed for this special duty) he must himself select the positions he is going to occupy in defense. He must be able to distinguish between real and feigned demonstrations, and watch out to avoid being led into enterprises that are antagonistic to his own interests and the real object of the rear guard. He can not expect aid, and must use his own resources to the best advantage; he should, if necessary, sacrifice himself and his command to secure the necessary delay. He should re-

member, however, that while gaining time is one great duty, knowing how and when to withdraw is another. He should be acquainted with his chief's wishes regarding counter-attacks or offensive returns and avoid all hasty action that might compromise the safety of the main force.

Duties of Officers other than Rear-Guard Commander.—The duties and positions of the officers and chiefs of a rear-guard are relatively much the same as those of the advance-guard, but the most careful instruction should be given as to the degree of resistance to be offered, and the extent to which reconnoitering and patrolling are to be carried. The same precautions to examine and patrol roads, paths, etc., as in the case of an advance-guard, should be taken when not too hotly pursued. Vigilant and energetic scouting is most necessary for protection from surprise, and no suspicious locality should be passed without investigation.

Modes of delaying the Enemy.—"The countenance of the rear-guard should compel the enemy to reconnoiter the position, to await the arrival of sufficient force to attack and to form them, from order of march to order of battle. But all these preliminary measures take time, and the gaining of time is the main object of a rear-guard." *

A usual mode of action in retarding the enemy

* Clery, p. 213.

is for the rear-guard to occupy a succession of defensive positions when the ground offers these advantages, and hold the same until the disposition of the enemy for carrying or turning them has become sufficiently developed to promise success; then the rear-guard is moved off to the next suitable position and repeats the same maneuvers.

The rear-guard retreats from one position to another by moving first one portion to the rear, while the remainder continues to show a bold front. The portion holding the forward position will in turn fall back on the position now held by the men first retired, and will either form up with them for renewed and united resistance, or pass farther to the rear and occupy a new position for the combined resistance of the entire rear-guard. This should compel the enemy to re-form in order of march in order to follow in pursuit, and it will again be compelled to deploy in order of battle, to try to drive the rear-guard from its new position; and again the rear-guard repeats these tactics. Thus the important factor, time, is gained.

In pursuing these tactics, it is often the object of the rear-guard to "threaten" to fight, but not to commit itself to an action. It is therefore allowable, for purposes of deceiving the enemy, to occupy a greater front than if a fight were really to be engaged in.

This calls for skill and good judgment in the disposing of the fractions of the rear-guard, so as to

magnify its strength and importance sufficiently to cause the enemy to wait for re-enforcements. "Eluding an attack in force, slowly falling back, and dealing sharp and rapid blows, without laying one's self open to a serious return, should be the principles regulating the conduct of a rear-guard." *

Lines of Retreat.—A force has frequently to retire by more than one road. In such cases, where the direction is more or less parallel, there would be a rear-guard on each road under a separate commander, but the whole of the rear-guards should be under one chief, if practicable. The rear groups should extend across the entire rear, with flankers thrown out only on the outer flanks of the outer columns. Thus a large force may retire in as many columns as may be necessary, connection being maintained between the different columns and also between those of the rear-guards at every cross-road, and wherever the country allows of communication, by means of connecting groups or patrols.

Defiles.—In the case of a defile, the retreat of the main body must be covered by the rear-guard at any cost. The enemy must be stopped at some distance from the defile, and a detachment from the main body should be left behind to hold such points as would cover the retreat, until relieved by the rear-guard. The outlet of a defile offers a better opportunity for

* Clery, p. 218.

opposition than the inlet. When making a stand with the defile at its back, the position of the rear-guard should, if possible, be convex toward the enemy; this permits a ready withdrawal by the flanks. At the outlet the position should be concave; this permits a converging fire upon the enemy.

Negative Measures.—All measures adopted for delaying the progress of the enemy may be termed negative or positive. The latter refer to the retardation of the enemy by actual or threatened combat; some of these we have considered. The former—negative measures—consist of any means employed to delay the enemy's advance, by destroying bridges, roads, etc., and blockading his passage. These negative measures "are diverse in their nature, and afford a wide field for ingenuity." When it is necessary for a rear-guard to destroy bridges or roads, or render them temporarily impassable, the preparation for their destruction or impairment should be attended to by details from the main body or reserve, and the completion of this work should be the duty of the last man to cross. In the case of destruction by fire, loaded shells arranged to explode at intervals would prevent any approach on the part of the enemy for the purpose of extinguishing the flames.

In the case of a bridge, it is suggested by Colonel Shaw that a good plan is to loosen the planks of a wooden bridge so that the troops that cross last can easily remove them, even in face of the enemy.

Gates and narrow roads can be barricaded with carts loaded with earth, stones, or manure, one wheel being removed from such cart on putting them in position.

Fords are rendered difficult of passage by placing farm implements, such as harrows, plows, scythes, etc., in the line of crossing. Major Wagner suggests throwing trees in the path of the river, the branches being turned toward the enemy and weighed down with sacks filled with stones; also that boats should be taken to the far side and either burned or sunk. Roads, when not blown up, can be made temporarily impassable by felling trees across them, etc.

These are, however, but secondary expedients; the greatest reliance must be placed upon the natural advantages of the ground traversed by the rear-guard.

Materials of War.—No materials of war that could be of use to the enemy should be allowed to fall into his possession in a retreat. What can not be removed should be destroyed. If hardly pressed, everything that could assist the enemy, such as standing corn, provisions, etc., must be burned, and horses and wagons appropriated and sent on to the main body.

Impedimenta.—No impedimenta, such as baggage, etc., should clog the progress of a rear-guard. It must be free in its movements, for, in case of a too great separation from the main body, occasioned by any cause whatsoever, it could not regain its lost distance by forced marches if hindered by baggage

trains, etc. Therefore, only that which is strictly necessary should be carried, and the rest sent to the reserve or main body, or destroyed.

Sick and Wounded.—In addition to gathering in the stragglers and compelling them to move on, the rear-guard should collect the sick and wounded, and not allow them to be left behind. Transportation may be requisitioned for the injured or disabled, and they should be forwarded to the main column every night. "When it is found necessary to abandon them, they should be formally transferred to the authorities of some village or town, and one or more medical officers, with a liberal supply of medical stores and money, should be left with them." *

Friendly Country.—When marching through a friendly country, the duties of a rear-guard are greatly lessened. Subsistence is more easily procured, guides are more willing to serve, and natives more ready to assist in the work of obstruction, or in hiding or removing supplies from the enemy.

Hostile Country.—In a hostile region all kinds of obstacles are put in the way of a rear-guard, which, added to the generally exhausted condition of the country, make the work of gathering supplies and assistance difficult.

Rear-Guard of all Arms.—As in the case of an advance-guard, a rear-guard is best qualified for de-

* Wagner, pp. 218, 219.

fensive and retarding work when composed of all three arms.

In an ordinary country all arms are necessary, as Colonel Shaw shows, but especially the cavalry. And not only for reconnoissance to the flanks, but to check the enemy's cavalry, which is certain to follow in pursuit. Horse artillery can also act with great advantage in this service. Machine guns may be added, and will be found to be extremely useful in delaying the enemy's advancing columns. But infantry is indispensable under all circumstances, in order to make a stand for defense at proper places, and form rallying points and protection for cavalry if driven in. "If the force, then, is of any magnitude, its rear-guard should be composed of all three arms in proportions suited to the ground that is to be passed over: cavalry to meet and ward off the enemy's light horse and guns, which in open ground can hover round the rear and flanks; artillery to take up favorable positions in retreat, to bear on the heads of pursuing columns; and infantry to bear the brunt of the enemy's attack and retard his advance at the chosen points of resistance. If guns are used with skill in a retreat, they can often save the deployment of their own infantry by obliging the enemy, as he presses on in pursuit, to halt and deploy, the guns retreating rapidly as the enemy forms up. Artillery is thus of especial value when added to a rear guard." *

* Shaw's Elements of Modern Tactics, p. 396.

CHAPTER VII.

OUTPOSTS.

General Principles.—The importance of outpost duty can hardly be exaggerated. No force in the field can be safe for a moment that has not taken the precautionary measure to protect itself from surprise. Just as the advance-guard, rear-guard, and flanking detachments of a marching force provide for its security from surprise and sudden overthrow, so outposts serve in a similar manner for a force when halted. Every man engaged in outpost duty should be vigilant, active, and intelligent. Defects in hearing or sight absolutely unfit him for this duty.

Courage without rashness, caution without timidity, are essentials to be associated with ceaseless vigilance and constant readiness for action. Aggressive action and rapid movement are necessary, too, to successful warfare nowadays—activity all around—and more especially in outpost work.

This duty, as pointed out by Gen. Clery, does not permit waiting for the enemy's advance and then stopping him when he arrives; but he must be searched for, and when discovered, it must be ascer-

tained what he is doing, what he intends doing, and how he means to do it.

Such information is of prime importance to a commander, and it is the business of the outpost to obtain it. The best method of securing all this is to find the enemy, and then never lose touch with him. By this is not meant passive supervision, but active and ceaseless endeavor to pierce through his screen of sentinels, and to learn all that can be ascertained concerning his force, its composition, strength, position, and any preparations for moving.

By constantly disturbing the enemy by these continuous efforts to gain information, the enterprises of his troops against one's own outposts are likely to be interfered with. But cavalry alone is of use for this work when any considerable distance separates the combatants, as infantry patrols rarely push out farther than from one half to one and a half mile, according to whether they are scouting by day or night.

General Duties.—The general duties of an outpost are:

1. To obtain all possible information about the enemy.
2. To protect the force it belongs to from ever being surprised.

In addition to the duties of protection, outposts secure rest for the main body when encamped. The importance of this can not very well be overrated,

as unbroken rest at night is vitally necessary for the preservation of health and efficiency of troops undergoing the hardships of campaigning.

The duties are classified as follows by Major Wagner: *

- | | | |
|--------------|---|--|
| Observation: | { | <ol style="list-style-type: none"> 1. To observe constantly all approaches by which the enemy might advance. 2. To watch and immediately report the movements of the enemy. |
| Resistance: | { | <ol style="list-style-type: none"> 1. To prevent reconnoissance by the enemy. 2. Above all, to check the advance of the enemy long enough to enable the main body to prepare for action. |

Obtaining "all possible information about the enemy" includes finding out his strength, composition, and position; the location of his flanks, and whether they are fortified or resting on natural defenses; the topography and resources of the country.

Subdivisions of an Outpost.—The example given in the Infantry Drill Regulations (1891) † is that of an infantry battalion of four hundred men covering a front of one mile. The principles involved apply to a larger or smaller number of men. The outpost should cover the entire front, and extend well beyond the flanks and toward the rear of the force it is pro-

* Page 57.

† Page 234.

tecting. As shown in Plate 101, Infantry Drill Regulations, outposts may be disposed as follows:

1. A line of sentinels with one or two men at each post, the posts from one hundred to three hundred yards apart. [This is known as the line of observation.]

2. A line of small groups called pickets. They are posted about four hundred yards in rear of the centre of the line of sentinels, for which they furnish reliefs. The pickets also furnish patrols.

3. A line of larger groups called supports, which are posted about six hundred yards in rear of the centre of the line of pickets. [This is called the line of resistance.]

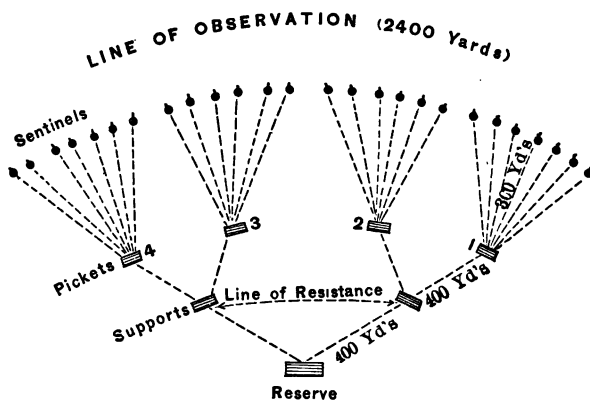
4. The reserve, which is posted about one thousand ~~yards~~ in rear of the line of supports and about two thousand yards in front of the main body.

The distances given in the foregoing example of a battalion outpost are variable, and can not be definitely fixed, for all depends upon ground, weather, nature, and proximity of the enemy. The chief essential is that the troops in support should be able to re-enforce in time. In such an outpost the pickets are usually from one hundred to four hundred yards in rear of the sentinels; supports from four hundred to eight hundred yards in rear of the pickets, and the reserve from four hundred to eight hundred yards in rear of the supports.*

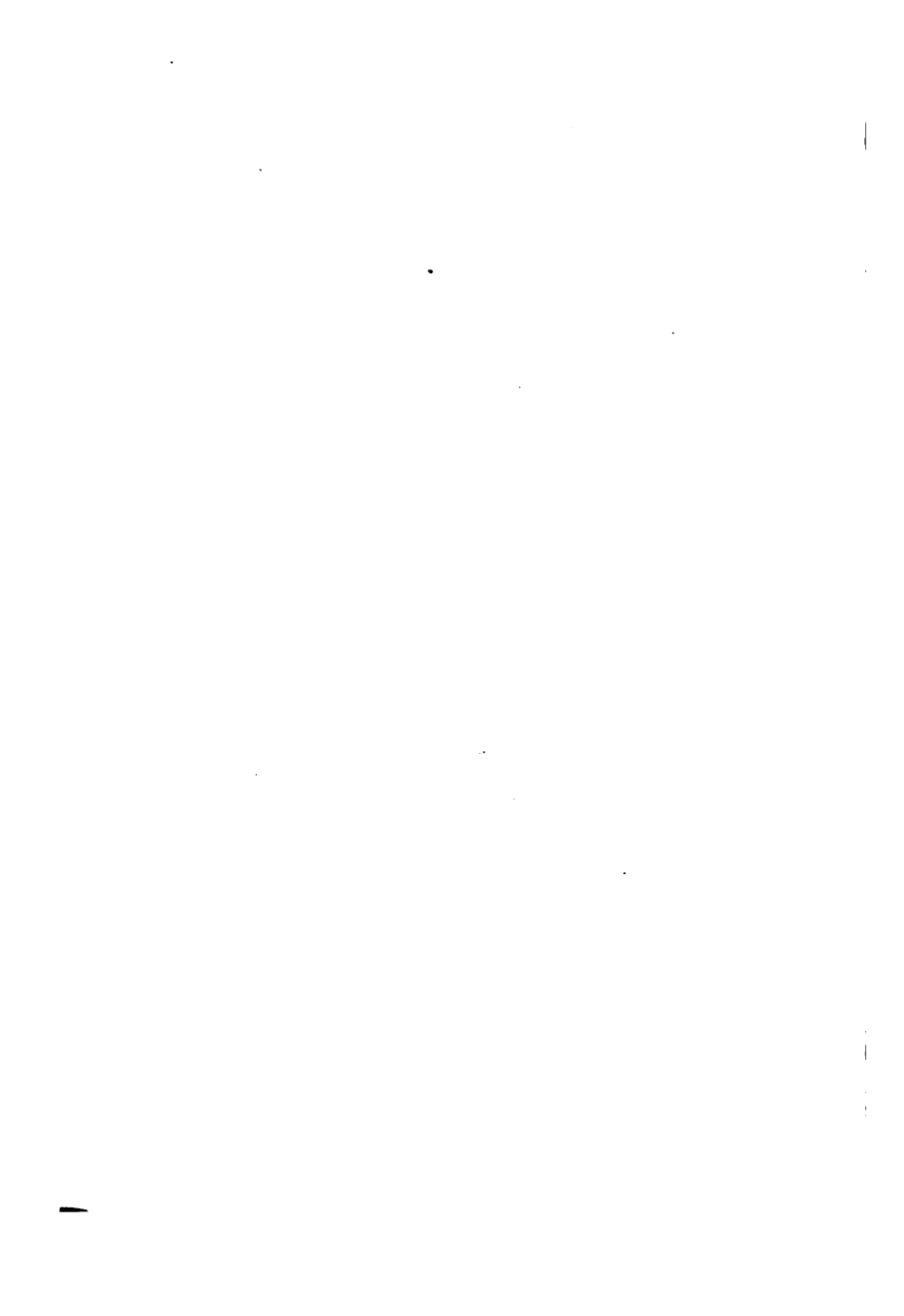
* See Plate VII.

PLATE VII.

CORDON SYSTEM



Theoretical disposition of an outpost.



The line of sentinels and pickets may be replaced by a single line of Cossack Posts—four men each—each group posting a sentinel who is separated by an interval of from one hundred to three hundred yards from the sentinels on his right and left. These groups are each commanded by a non-commissioned officer or experienced soldier, and furnish their own reliefs. The sentinels are placed from ten to thirty yards in advance of their posts, while the other members remain concealed and keep them constantly in view * (see Cossack Posts further on).

“The general plan of an outpost may be likened to an open fan, the sentinels being along the outer edge; or, better yet, to a hand with the fingers extended and widely opened. A line along the tips of the fingers would represent the chain of sentinels; the first joints, the line of pickets; the second joints, the line of supports; and the knuckles, the line of the reserve; while the wrist would represent the portion of the main body.” †

Outposts are either on the Cordon or Patrol system. The first consists of a line of sentinels covering the entire front; the second, of patrols, constantly alert and guarding all approaches. They are closely supported by pickets, and the intervening country is constantly patrolled. The best results are realized by combining the two methods, for, while patrols

* See Plate VIII.

† Wagner, p. 58.

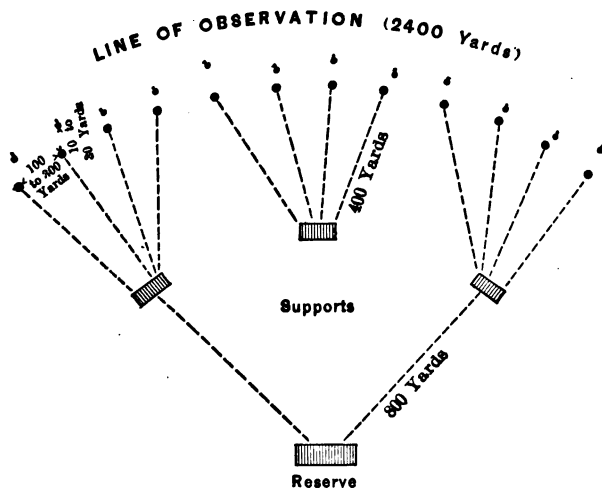
might bar the passage of small bodies of the enemy, individuals might slip through the line; this would not be so likely to happen with the Cordon system.

Position of Outposts.—The ground to be occupied by an outpost should be selected first with reference to the position of the main body, and then with reference to the approaches from the enemy's side. A prominent natural feature, such as a ridge, would establish a general line from which a good view could be obtained of all approaches; in low or level country a river or canal could be used as a sentry line. But when in close reach of the enemy, or in the case of a small force, the selection of a position would have main reference to its advantages for the outpost. In all cases a good view and free field of fire are necessary, while cover from view and shelter from the enemy's fire should be secured. A wood, held at the farther edge toward the enemy, is one of the best positions. When the site for the outpost is determined upon, the line of resistance—supports—is first located, then the line of observation—sentinels—while the line of pickets is regulated by the line of sentinels, and not the reverse.

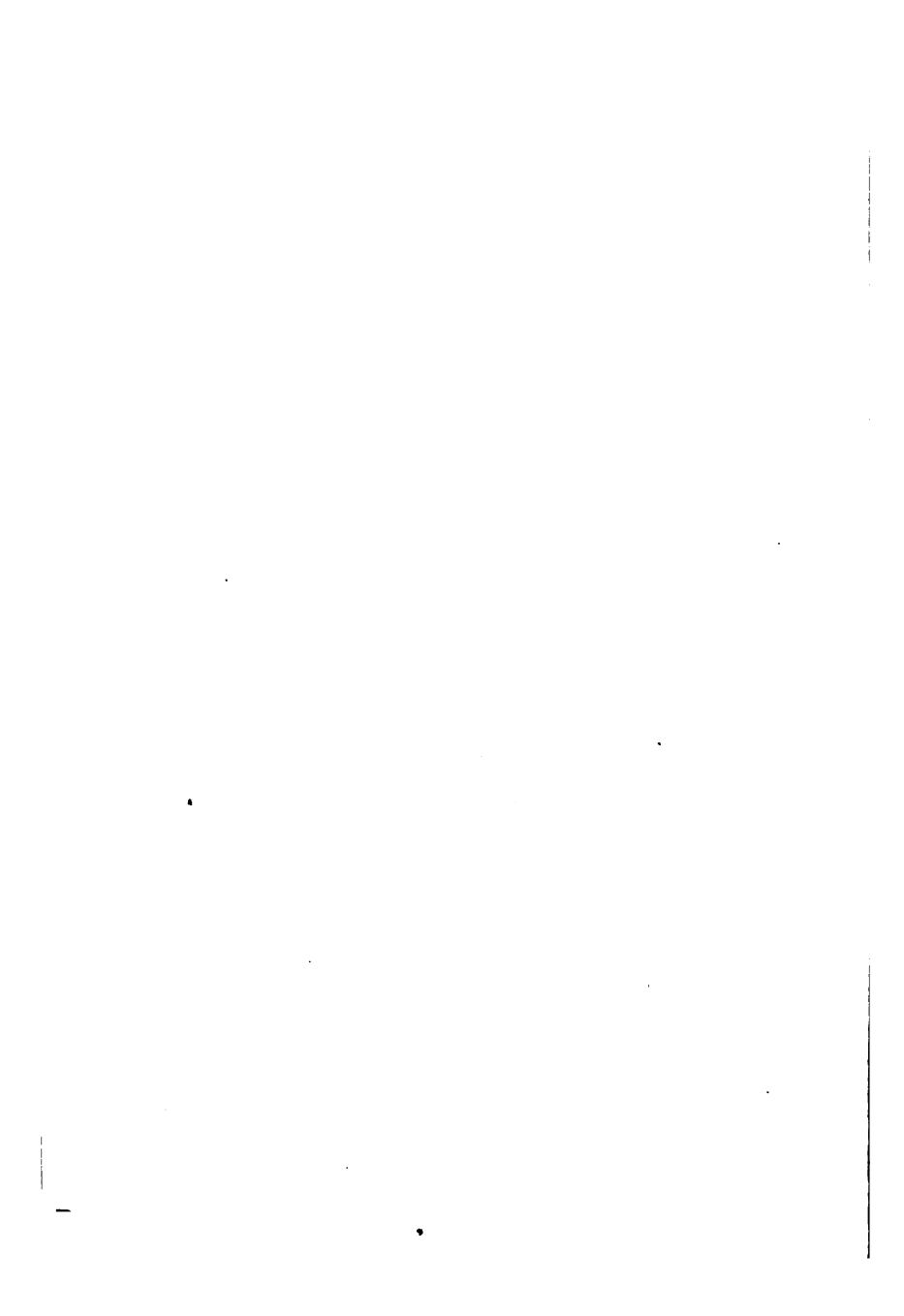
Strength of an Outpost.—The work connected with outpost duty being so severe, its strength is limited to that number which can perform the constant work of observation, assure protection and rest to the main body, and offer sufficient resistance to enable the main body to prepare for action.

PLATE VIII.

COSSACK POSTS



Theoretical disposition of an outpost.



It is seldom stronger than one sixth of the whole force. In fixing upon its strength, the ground, proximity, and strength of the enemy all have to be considered; but in any event it should be as small as consistent with prudence.

Distance between Outpost and Main Body.—The distance separating the outpost from the main body should be sufficient to enable the main body to prepare for action before the outpost could be driven back upon it. If artillery is considered, as it would have to be under general conditions, then the distance must be great enough to prevent the enemy from shelling the camp without first driving in the outpost.

With small bodies of troops the distance would be governed by the chances or possibility of the enemy getting in between the outpost and the main body.

Usually the supports—line of resistance—would be about three thousand yards in advance of the main body. With changing conditions come altered situations, and good judgment will have to be trusted to meet them.

Composition of an Outpost.—As shown elsewhere, after a body of troops has halted for the day, the advance-guard naturally constitutes the outpost. And if outposts are needed on the flanks and rear, they are composed of the flank and rear guards. If these should not be strong enough, then the main body strengthens them with the necessary re-enforcement.

An outpost may consist of one or all three arms. Circumstances decide. Usually cavalry and infantry are most usefully united, and are preferable. In open country the former is most necessary; in close or rugged country and at night the latter is indispensable. Besides being able to patrol long distances, the cavalry is desirable for orderly work with pickets, supports, and reserve, and for accompanying infantry patrols for the purpose of carrying back rapidly any information that may be gained.

Artillery is valuable to an outpost for purposes of commanding important approaches or defiles. It would ordinarily be safe from infantry fire, and, if required, could cover the retreat of any advance portions of the outpost with its fire. Machine guns are also very useful for guarding important avenues of approach, such as narrow passes and defiles.

Commander of Outpost.—An officer is specially detailed to command the outpost, and his headquarters should be with the reserve.*

Each section commander makes his headquarters with one of his supports, and is under the command of the outpost commander.

The outpost commander is informed by the commander of the main body of all that is known of the enemy—his whereabouts and movements, his posi-

* The field telegraph or signal station is established here when employed.

tion and strength, whether any advance is apprehended, approaches from the enemy's side, etc. He also receives such instructions as refer to the general front to be occupied by the outpost, its object, and the amount of resistance to be offered.

The outpost commander then determines what the strength shall be for reserve, supports, and pickets, and selects the line of observation, and its distance from the main body. A good topographical map of the region would help in making this selection, but in its absence reconnoissance must be resorted to in order to make the best choice, and in any case, before detachments move out, the ground should be carefully examined. "The station of the reserve is next fixed, the positions of supports pointed out, places for the pickets approximately designated, and the general line of the sentinels roughly indicated." *

This arranged, the outpost commander then gives instructions to the subordinate commanders as to—

1. The general front of the outpost line.
2. The ground to be occupied by each.
3. The positions of neighboring supports and pickets.
4. The right positions of the pickets and supports.
5. What is known of the enemy and his probable movements.

* Wagner, p. 72.

6. The approaches by which the enemy might advance.

7. The direction and method of patrolling.

8. What is to be done in case of attack.

9. How flags of truce and deserters are to be received.

10. The kind of reports required.

11. Where he himself is to be found.

12. The countersign and parole.

The outpost having been posted, its commander then makes his inspection. Should the positions of supports, pickets, or sentinels require any change or alteration, he causes the same to be made. He should see that all roads, paths, etc., are properly guarded, and the flanks made secure by either some kind of fortification or intrenchment.

Where outposts remain in position for some time, the sentinels can secure shelter by digging pits about two and a half feet deep, and throwing the earth forward, which should then be covered with twigs, branches, or sods, so as to look as natural as possible.

The commander forwards all information gained by his sentinels or otherwise to the commander of the main body. He tests its accuracy first, delaying its transmission as little as possible.

Sentinels.—Sentinels are furnished by the pickets and detached posts, and they must be placed so as to command a good view front and to the flank. They do *not* walk their posts but remain concealed and

watch for any indication of danger. They are generally posted in pairs. This permits of one man going off to examine any suspicious points while the other remains on guard. They are also posted in groups (Cossack posts). In the first case the reliefs remain with their picket when not on post; in the second, the entire group marches out with the sentinel, and remains in concealment a little way behind him, but keeps him constantly in view. When the group system is employed, one sentinel will do for day work, but at night two sentinels should be posted. In the group system each Cossack post furnishes its own relief, and should consist of either three or six men, according as they are on duty during the day or during the night, and every two or three groups should be under the command of a non-commissioned officer.

Sentinels must always be on the alert and have their wits about them. Resting content with not seeing anything will not answer; they must be prompt to catch any indication of the enemy being on the move. As Clery puts it: * “Firing of any kind, where it comes from, whether it is continuous, how far it is off, is it from a big gun or a rifle, has it been increasing or diminishing; dust clouds and smoke by day, and lights, rockets, and torches by night; anything having the appearance of signals, such as the flashing of heliographs by day and the

lighting or extinguishing of fires by night; all unusual noises, more especially at night, should attract their attention, and keep them on the alert."

Lighting matches, smoking, and conversation are prohibited; if it is necessary to talk for any good reason, then such conversation must be conducted in whispers.

All bright or flashing parts of a sentinel's equipment should be dulled, and, except on dark nights or during foggy weather, the bayonet should be kept in the scabbard.

Each sentinel on outpost duty should understand clearly the following:

1. The countersign.
2. The number of his post.
3. The number and position of his own picket and the name of its commander.
4. The position of the neighboring sentinels, and of the examining post, when there is one.
5. The direction of the enemy and the probable line of his advance.
6. The points to which all roads, paths, and railroads in sight lead.
7. The name of all rivers and villages in view.
8. The signals by which he should communicate with the pickets or detached posts.

Too many instructions, however, are often fatal; the essential thing is to have the sentinel understand where he is to look for the enemy, and what he is to

do if he sees him. Sentinels must also understand that only persons on duty with the outpost, or having authority over it, are permitted to cross the line of sentinels. All others are halted, and only one advanced at a time, and this one is conducted to the examining post or to the picket either by one of the sentinels, or by the patrol when it arrives. A refusal to halt, or an attempt to escape by the person thus challenged, should be the signal to shoot him down, even at the cost of a general alarm.

In the case of deserters from the enemy, or when a flag of truce appears, the sentinel, in the first case, orders them to lay down their arms, and notifies the picket at once, which sends a patrol to bring them in; in the second, the bearer and his escort are halted in front of the line of sentinels and ordered to face outward—that is, in the direction whence they came. Word is then sent to the commander of the picket, and while the bearer and escort are halted no conversation must be allowed among or with them, nor must they be permitted to reconnoiter the position.

Firing is only to be resorted to in order to alarm the camp, and should be avoided for any other reason, as an important object of outpost duty is to secure rest for the main body. It can be seen easily that if indiscriminate firing were allowed it would create a constant state of alarm and unrest, and when actually used as an indication of real danger it would have lost its true significance.

Sentinels once placed in a position should be returned to the same post each time they are re-posted, and especially so at night. They thus become better acquainted with the ground, and can perform their duties more efficiently.

Connecting Sentinels.—Whenever the post of a sentinel is out of view of the picket, a connecting sentinel is posted so as to be seen by both sentinel and picket. Such sentinels are posted singly, and their business is to transmit signals.

Picket Sentinels.—The picket places a sentinel at its post for the purpose of transmitting all signals from any of the sentinels or connecting sentinels; he should report any unusual occurrence as well.

Examining Posts.—Examining posts are special posts placed in rear of the line of sentinels at some designated place on a main road, and are under the command of an officer or non-commissioned officer and six men.* They place two sentinels, one of whom halts all persons approaching their post, while the other notifies the commander, who examines them and either allows them to pass or conducts them to the picket commander.

Bearers of flags of truce, spies, etc., should be blindfolded before being brought to the examining post, although, as a rule, all communication with the bearer of a flag of truce is held outside the lines. It

* Three reliefs for one double-sentinel post.

is only in a stationary camp that these posts are used, as they would seldom be required with an army marching from day to day.

Pickets.—The duty of the picket is to furnish the line of sentinels, and then support them if attacked. They consist usually of from twenty-five to fifty men, and are commanded by an officer. Pickets are numbered from right to left. They supply from two to four double sentinels.

Where detached posts are to be taken care of by a picket, extra men must be detailed to strengthen it, and provision made to allow for patrolling. These detached posts are in reality small pickets, and are used to protect exposed points or support isolated sentinels. They are not allowed to light fires, and the men must keep their equipments on and be ready for instant action.

Generally about one third of the picket is used for patrolling. When the country is close, the patrols should be increased rather than the sentinels. At night the patrols are the chief reliance for observation.

There should always be a sufficient number of men in a picket to allow of three patrols: one out patrolling, one ready to start out, and one resting.

The smallest possible number of men to a picket is six for every double-sentinel post, three for each connecting sentinel, and three for the picket sentinel, with at least three non-commissioned officers. This

estimate does not provide for patrols; they must be added to this number.

In posting a picket the following considerations should be borne in mind:

1. It should be near enough to the sentinels to give them prompt support, but not so close as to be involved in their disaster if they should be surprised and suddenly driven in.

2. It should be posted on and command some route leading from the enemy; the largest pickets on the most important routes.

3. It should be in a good defensive position; should have a good field of fire to the front, and should be so far concealed that the enemy could not discover it without attacking.

4. It should, as far as consistent with the foregoing requirements, be in the rear of the centre of its line of sentinels.

5. It should have free approaches to its sentinels, neighboring pickets, supports, and reserve, and should have a good line of retreat.

6. It should be close enough to the neighboring pickets for mutual support, and a mutual flanking fire should be provided for.

It can hardly be hoped that a position fulfilling all these requirements will be easily found; hence the one coming nearest will be the best.

All roads leading from the enemy's direction should be in front of the picket, while roads flanking

the picket's position should be watched vigilantly. Little woods, plantations, etc., in the neighborhood should be occupied by a small post or frequently patrolled, as these are always a source of danger to an outpost.

In civilized warfare, well-defined roads usually abound, and to these routes an enemy on the march is practically tied. These approaches are therefore to be watched constantly, as no very serious enterprise can be undertaken except by such thoroughfares.

Fires are not lighted except for special reasons, and then only when expressly authorized. If a fire is allowed it should be concealed, and at night the rallying point should be at some distance to the rear, for, if attacked, the enemy, marching toward the fire, would be clearly outlined, while the picket would have the advantage of the shadow.

The commander of the outpost issues instructions as to the cooking of rations, and whether the advanced parties are to cook their own or have them sent forward from the support or reserve.

Pickets should always be under arms an hour before daylight, and should be relieved at this time, while patrols should be sent out to see if there is any sign of the enemy. Attacks usually occur at dawn, and the advantage of having the outpost practically doubled, during relief, in the event of an attack is self-evident. Should the outpost be attacked, the picket re-enforces the line of sentinels by deploying

as skirmishers, especially if the supports are near. If not, then a part of the picket is kept as a reserve to ward off any flank attack, more especially if the picket be a flank one.

Pickets should not be posted in a house or inclosure, such as a walled garden, cemetery, etc.

The picket commander may allow his men to stack arms and remove their accouterments, always excepting the cartridge box or belt. The men must not leave the immediate neighborhood, but be ever ready to take their places at once. A part of the picket is kept ready for action at night while the remainder is sleeping under arms. Any suspicious noise or event should find the picket ready for action, and if an attack is not imminent, a patrol should be sent out to discover the cause of the disturbance should it continue.

On the officers commanding pickets falls the direct responsibility for the safety of outposts. Constant vigilance and supervision are necessary to insure efficient work by patrols and sentinels, as well as general alertness. They should have a clear plan in their minds of what they would do in case of attack, framed in accordance with their instructions from the outpost commander.

If his orders are to hold the line the sentinels are occupying, the picket commander will re-enforce that line as strongly as possible and send word at once to the supports and reserves. He will hold this position

till the flanks are dangerously turned, and then fall back. But he will do so as slowly as possible, fighting and holding on tenaciously to any favorable ground he may come to. His retreat should be conducted with confidence inspired by support close at hand, and the knowledge that every moment's delay in the enemy's advance may be of extreme importance to the main body. He should work in general concert with the other picket commanders, and any one of them who is not too hard pressed should seek to attack the flank of the enemy pressing on a neighboring picket. Unless specially ordered to do so, a picket should never shut itself up in a building or compound with a view of holding out to the last.

Outpost Patrols.—Visiting and reconnoitering patrols constitute the outpost patrols.

Visiting patrols generally consist of a non-commissioned officer and two or three men. They are seldom required by day except in foggy weather. They move along the front of the sentinels, beginning at one flank and returning by the other. They should communicate with the next post on each flank of the line of sentinels of their picket. These patrols also visit detached posts and the neighboring pickets and the support. Their duty is to see that the sentinels of its pickets understand their duty and are performing it. They examine any suspicious localities outside of the sentinels' posts, take charge of

any prisoner or person detained by them, and relieve such sentinels as may be sick or incapacitated. When sentinels are clearly visible from their own pickets they need not be visited more than once during the day by each relief.

At night a patrol should not cover more than about five hundred yards in its operations; if the distance separating two advanced posts is greater than this, then patrols from other pickets would have to visit the sentinels, as posts so widely apart would rarely be furnished by one picket.

When the picket is weak, the reliefs are used as visiting patrols.

Reconnoitering Patrols.—The duty of a commander of a reconnoitering patrol is “to find out something worth knowing.” He must keep pushing on, if possible, until stopped by the enemy. As a rule, an infantry patrol would limit its distance at night to about half a mile, while in the daytime it might prudently continue farther. Cavalry, naturally proceeds farther, and may move out ten miles or more.

The members of the patrol proceed cautiously, endeavoring to gain all possible information of the enemy. Their duty is not to fight but observe. They watch the enemy's movements, examine his position, if possible, and note all suspicious circumstances. They must be alert and vigilant, and strive to gain such information as they were sent out for.

Should they come upon the post of the enemy, the patrol conceals itself but must not lose sight of him. Meeting a body of the enemy, the patrol falls back promptly, without, if possible, being noticed; but, in the case of a small patrol of the enemy, it should be driven in, to find what is behind it. The patrol avoids, generally, all engagements, unless ordered to take prisoners, and its duty is best performed when it returns with valuable information without having been seen by the enemy.

The time for sending out patrols as well as their direction should be varied, in order to avoid any possibility of ambuscade, and patrols that have scouted certain ground by day should be used for examining the same region at night.

Provision is made (in the text-books) for patrolling posts which replace the advanced posts in front of pickets. They are composed of four men each, and are used at night. At dusk these small patrols are sent along all the avenues by which the enemy might approach, and are usually restricted to patrolling certain roads to a given distance.

Supports.—Supports are provided either to re-enforce the pickets or to constitute a force upon which the pickets may fall back. The latter is more usually the case, as the supports occupy the line of resistance, the first ground selected in an outpost and chosen for its defensive strength.

The strength of a support should be equal to the

number of pickets it is supporting—usually two or three. Commanders of supports should arrange with the picket commanders in front for united action in case of attack, and provide for intercommunication with them and neighboring supports and the reserve by means of patrols.

The support provides for its own immediate safety by posting its own sentinels and keeping up communication with the pickets in front.

The commander of a support may permit his men to stack arms and remove their equipments, the cartridge box or belt always excepted, but the men will not be allowed to leave the post of the support; they must be ready to fall in instantly.

Unnecessary noise of any description will never be permitted in any part of an outpost.

Supports are usually allowed to light fires; they should always be placed so as to attract as little attention as possible. Cooking for the pickets as well as for themselves may frequently be required.

The Reserve.—The reserve, which is the headquarters for the outpost, forms the general support for the entire outpost. It usually consists of all three arms when the force is of any considerable size. The employment of artillery would here be regulated by the same considerations as would govern in the defense of any position.

The reserve should be concealed and posted as near the centre of the line of supports as practi-

cable, for the purpose of affording assistance as quickly as possible to the front or flanks. It is sometimes divided into two parts to facilitate a prompt support to the more advanced parts of an outpost, and should be placed upon their principal line of retreat to the main body. In some cases it may have to intrench its position and place obstacles in the way of an advance, but generally its work is one of reinforcement, and intrenchments would be placed on the line of resistance.

The reserve is allowed to light fires, and, if required, may have to do the cooking for the more advanced troops.

Cossack Posts.*—Cossack posts consist of four men—three reliefs of one sentinel each and a commander, who will be either a non-commissioned officer or old soldier. They replace the line of pickets and sentinels.

Each support supplies from four to twelve such posts. They are placed, in close or rugged country, about three hundred yards in advance of the support, and from one hundred to one hundred and fifty yards apart. In an open country the distance would be about four hundred yards, and the intervals one hundred and fifty to three hundred yards.

The sentinels are posted from ten to thirty yards in front of the Cossack posts, and each is kept con-

* See Plate VIII.

stantly in view by the other members of his post, who conceal themselves. The sentinels are relieved every hour, and the post is relieved every three hours. Patrolling is usually done by the support, but one or two men may be sent from a post to patrol the posts on either flank. "It would seem at first thought that a line of Cossack posts must lack the resisting power of the two lines of sentinels and pickets, and that it should therefore be used only when the ground affords strong defensive positions. It is not, however, without many positive elements of strength. The sentinels are more likely to be free from the timidity of loneliness and to be more resolute in the performance of their duty when they are closely backed up by a friendly post than when they are at a considerable distance from a picket. Each post should be intrenched and should be so stationed as to be able to cross its fire with that of the posts on its right and left. It is reasonable to suppose that the posts could hold their own long enough to enable the supports to prepare fully for action.

"In consideration of these facts and the still more important one that the system of Cossack posts is in thorough keeping with the nature of American warfare, its adoption in almost every case may be safely recommended." *

The same authority shows the economy of using

* Wagner, p. 86.

Cossack posts in outpost duty. We will compare the usual method—sentinels, pickets, supports, etc.—with the Cossack-post system.

Let the line of observation be twenty-four hundred yards for each. “In the first case we have four pickets, each supplying three reliefs for two double-sentinel posts and the post at the picket. Add three reliefs of (say) four connecting sentinels for the entire line, and we have seventy-two men; but one third of the picket consists of patrols, which makes the total for the pickets one hundred and eight men. In the second case we will take the same number of connecting sentinels and allow the same number of men for patrols, assigning them, however, to the supports. We have, then, the following:

<i>First Case.</i>		<i>Second Case.</i>	
Pickets.....	108 men.	Cossack posts.....	48 men.
Supports.....	108 “	Supports.....	96 “
Reserve.....	108 “	Reserve.....	96 “
Total.....	324 men.	Total.....	240 men.

“Adding non-commissioned officers, we should have in the first case about three hundred and sixty men for the strength of the outpost, and in the second case about two hundred and sixty. In round numbers we should require four companies (war strength) in the first case and three in the second. This estimate may be regarded as a minimum rather than a maximum.”

Outposts at Night.—There are usually some changes to be made in an outpost at night, and such as are necessary should be arranged in the daytime and put into execution at dusk.

Bridges, main routes, and other obligatory points of passage should be guarded by at least two sentinels or a small patrol, and should be closely backed by their reliefs or pickets. The cordon system of outposts is objectionable at night, as it necessitates either an increase in the number of sentinels or a contraction of the front. The latter proceeding is undesirable, as it involves the abandonment of ground that may be valuable, and the recovery of which might cost an engagement; so that, if practicable, the outpost line should not be changed at night.

When it is necessary to adopt such a measure, the original line should be resumed on the approach of daybreak with as much care and preliminary examination as at the previous occupation.

At night outposts have to expect attacks for harassing purposes, capturing sentinels or pickets, or reconnoitering the position, and it is not only necessary for sentinels in front to keep a sharp lookout, but the intervals of ground separating them must be patrolled vigilantly.

The pickets should be placed nearer the line of sentinels at night than during the day, and occupy a strong defensive position. They will have to offer resistance; the sentinels can only observe and

give warning. At night all sentinels on high ground should be placed so as to bring any advancing foe against the sky-line, they themselves remaining in darkness, and, as has been already stated, bayonets should not be fixed either by day or on bright moonlight nights, as the glitter of polished metal is seen farther than the brightest colors.

Posting the Outpost.—The force detailed for outpost duty should have:

1. A good supply of ammunition.
2. One day's cooked rations, if practicable.
3. Canteens filled with coffee, or water if cooking is to be allowed.

In addition, non-commissioned officers should have pencils and memorandum pads. Officers should have a watch, compass, field glass, pencil and pad, and, if possible, a good topographical map of the ground.

These requirements fulfilled, the troops are inspected, and, if time permits, the subordinate commanders take down in writing such orders as may be given them by their commander, and then the outpost moves out to its position with an advance-guard.

The reserve and supports may march from camp straight to their positions, or may march together and be detached from the column at their proper places. Each body, moving separately, is covered by a point and flankers. The picket pro-

ceeds with caution and vigilance and is halted slightly in rear of the line of observation, and a few squads are deployed as skirmishers. Their intervals should be sufficient to allow them to cover approximately the front to be occupied by the sentinels of the picket, and they then move cautiously forward to reconnoiter, being followed by the first relief of sentinels to go on duty. Where it is impracticable to throw out a skirmish line, as just explained, owing to too great an extension, then several small patrols should reconnoiter the ground in front.

The picket commander arriving on the line of observation, halts and sends his skirmishers about one hundred yards farther to the front, provided the country is close or wooded, and when the first relief of sentinels arrives, posts them quickly on the line, and if necessary he may change the posts afterward, as prudence may suggest.

The skirmishers or patrols in front are then recalled and sent back to the picket.

Any place affording a good view should then be selected and immediately occupied by two men, one of whom should have a field glass and be constantly on the watch.

The commander of the picket should visit his sentinels, commencing on one flank and passing to the other, making such changes as may be advisable for the best performance of his work, and seeing that his sentinels are posted so as to secure good observa-

tion and concealment, and that they do not number more than is necessary.

Next, the picket sentinel is posted. He warns the picket of any danger and transmits any signals from the sentinels in front. Afterwards, the necessary connecting sentinels are posted and, if required, detached posts are sent out. Details are then made for patrolling. The picket stacks arms and the men are allowed to fall out. They must, however, remain quiet and in the immediate vicinity of the stacks, ready to fall in at once. The commander then sends a report to his immediate commanding officer of his position and dispositions, and, if possible, accompanies the same with a rough sketch.

When Cossack posts are established in place of pickets and sentinels, the force detailed for the line of observation on leaving the supports deploys first into line of squads and then into line of skirmishers, taking such intervals as to cover the front to be occupied. Upon halting on the line, such reconnoissance to the front as may be necessary is effected and the skirmishers are then assembled by squads. Numbers three and four front and rear rank of each squad are then marched halfway to the next squad on their left and halted. Each group of four men then constitutes a Cossack post.

When the advance-guard forms the outpost at the end of the day's march, the advance party (of the advance-guard), re-enforced by the supports, if ne-

cessary, until both are of equal strength, supplies the pickets and sentinels; the support furnishes the supports, and the reserve constitutes the reserve of the outpost. When the place for camp or bivouac is selected, the advance-guard marches to its post as an outpost in the same general manner as though detailed from camp.

Relieving the Outpost.—When an outpost is relieved, all ceremony is avoided. It is relieved at dawn, and, as already pointed out, this insures double strength at a time when an attack is most liable to occur. No positions are prescribed for Reserve, Supports, or Pickets; they stand “at ease,” to avoid fatigue and insure silence. The new commander receives from the old all information regarding the enemy that he possesses, as well as all standing orders for the reserve. Each support then marches to the post of the support which it is to relieve, and both supports stand “at ease” while information and orders are transmitted, as already explained for the reserve.

When the new picket arrives to relieve the old, both stand “at ease” while the old and new picket commanders visit the sentinels’ posts together, followed by the first relief from the new picket. The old commander acquaints the new with all the information he has gathered in regard to the enemy and points out any important features of the ground in his vicinity, as well as the known or suspected posi-

tions of the enemy's posts. The old sentinels and detached posts, if any, having been relieved, the commander of the old picket sends in a written report to the commander of the outpost, or section,* and marches his picket back to the support. As soon as a support has been joined by its pickets, it marches back to its reserve and the entire old outpost returns to camp. Or each support may march directly back as soon as joined by its pickets.

If while the old outpost, or any part of it, is returning to camp the enemy should attack, it must return at once to the assistance of the new outpost.

Outposts are generally relieved every twenty-four hours. If the force is on the march, the outpost is relieved as soon as the advance-guard has passed the chain of sentinels. If the army is retreating, the outpost forms the rear-guard when practicable.

Defense of Outpost.—Outposts should avoid bringing on an engagement. If attacked, they offer a stubborn resistance, so that the main body may have time to form for action. The supports being usually placed in the strongest position—the line of resistance—it is upon them that the brunt of the assault will probably be made, though in some cases it may be advisable for them to re-enforce the line of pickets. In the former case the pickets would

* By section is meant two or more supports under command of an officer specially detailed.

usually deploy as skirmishers and advance to strengthen the line of sentinels. The whole line would then fall back slowly upon the supports. The pickets direct their retreat upon their flanks in order not to mask the fire of the supports and form their skirmishers on a line with the skirmishers of the support. Where the supports re-enforce the picket line, the latter should be intrenched. The sentinels fall back on the pickets, retreating in the same manner, by their flanks, so as to unmask the fire of the pickets, and the supports are brought up and deployed in the intervals between the pickets. In either of these cases the reserve should re-enforce the troops in front as quickly as the direction and nature of the attack are known.

If the attack is beaten off and the enemy repulsed, no pursuit should be made, but the infantry reoccupies its former positions.

The cavalry should send out patrols to discover either where the enemy has halted or what direction he is taking. The pickets and supports would ordinarily change their positions in order to deceive the enemy as to their whereabouts, unless by so doing they would sacrifice any advantages which their former positions possessed.

Volleyes should be used in meeting the enemy, provided timely warning has been given to permit of this kind of firing, which insures greater steadiness in the men and allows better control over them, be-

sides producing a decided moral effect upon the aggressor.

Compliments.—Outposts pay no compliments. When a reserve, support, or picket is approached by a general officer, the commander of the outpost, or an armed party, the men fall in, in rear of the stacks, ready to take arms. Individual members of the outpost, with the exception of sentinels on post, salute when addressing or addressed by a superior officer. The vigilance of sentinels in watching the enemy must not be disturbed by any formalities of military etiquette. They pay no compliments and take no notice of any of their officers who may come upon their posts, unless addressed, except so far as may be necessary for challenging and identification.

Baggage.—All baggage belonging to the force detailed for outpost duty is left with the main body, and only tool carts and ammunition wagons are allowed to be brought up.

CHAPTER VIII.

PATROLS AND RECONNOITERING.

IN discussing the safety measures necessary to a force in the field, security and information have been shown to be inseparably linked. We have already dwelt upon the measures of security; we will now consider the manner of gaining information.

As already seen, information about the enemy's force, composition, position, and movements is the first requirement of a commander; it is the first step to victory.

The surest method of acquiring this reliable information is to keep constantly in contact with him by sending reconnoitering parties up to his position if he is halted, by still keeping him under the eye of a watchful group if he is advancing at a distance, and by never losing sight of him if retreating. This work of surveillance must be performed by cavalry when the enemy is at any distance, but whether the cavalry or infantry are engaged, or both, the duties and objects are the same.

Equally important to gathering information is the necessity for preventing the enemy from obtain-

ing like information for his own side. The disposition of troops, however, for obtaining intelligence of an enemy are usually made with a view to prevent just this thing.

The aim and object of all scouting is to seek for and obtain information of the enemy's whereabouts, force, and movements; to rapidly send back that information, and prevent the enemy from gaining information.

Reconnaissance is usually considered under three heads:

1. Reconnaissance in force.
2. Special reconnaissance.
3. Ordinary patrolling with groups either small or strong.

The first—reconnaissance in force—does not come properly under our consideration, as it is an openly offensive movement by a large force composed of all three arms and generally the precursor to a general action. Its conduct is regulated by the usual considerations governing a regular attack.

The second—special reconnaissance—has always a specific object in view. It may be required to reconnoiter a position; attack a post to discover the strength and intentions of the enemy; to see if a bridge is intact or not; a defile fortified, etc. A special reconnaissance is usually strong enough for the purpose in view but no stronger, and when its object is attained it falls back.

The third—ordinary patrolling—includes all smaller reconnoitering operations by patrols, varying in strength from three men to a company of infantry or troop of cavalry.

A patrol should never be composed of less than three men, as provision should always be made to allow one man to return with a report, without leaving the commander unsupported.

Patrols are classified in the United States Army as Officers, Reconnoitering, Visiting, Covering (Flanking), and Connecting Patrols. To these are added Exploring, Harassing, Expeditionary, and Pursuing Patrols. "The classification into small and strong patrols is the important one, for without changing its size and without material modification of its methods the patrol may combine the functions of several of the different kinds of patrols contained in the second classification" (Strong patrols).*

A strong patrol is one having from nine to one hundred men; a small patrol from three to eight men.

Officers' patrols are extensively used in connection with the cavalry screen. They are composed of from two to ten men or of two officers alone. They are commanded by an officer.

Visiting patrols belong to outposts only, and have already been considered.

* See Wagner on Patrols, etc., p. 114. His definitions have been mainly adhered to in the following pages.

Connecting patrols are used in the cavalry. They maintain communication between columns of troops on the march or between different bodies in battle.

Covering or flanking patrols are always strong; they reconnoiter farms, woods, defiles, etc., on the roads running parallel to the line of march of the main column. They are placed well out from the flanks and consist of from ten to twenty men, or, if necessary, they may be full strength (one hundred men). They conform to the general principles for the guidance of patrols, and maintain, if practicable, communication with the main column.

Exploring patrols explore the country in front of the main body or army. The nature of their duties suggests "Military Topography," but as their work embraces much that must be done at times by general patrols or special patrols, the following points will be of value:

Roads.—Their direction, nature (whether of dirt, macadam, etc.), condition, grade, width; where lateral thoroughfares enter, their nature, direction, etc.; their borders (whether hedges, fences, ditches, or woods); points where they pass through defiles, across rivers or streams or heights, and intersection of railroads.

Railroads.—Their direction, number of tracks, stations, junctions, grades, nature of cuts, embankments, and tunnels.

Bridges.—Position, width and length, construction (whether iron, wood, stone, etc.), and approaches.

Streams.—Direction, width, depth, rapidity, liability to fluctuation, as shown by driftwood or other indications, fords, nature of banks, heights, etc.*

Woods.—Situation, extent, shape, whether impassable or not; ravines, nature of roads, marshes, etc.

Canals.—Direction, width, depth, condition of towpath, locks, etc.

Telegraph.—Number of wires [which may be

* To ascertain the rate of the current, throw a branch into the stream and see how far it floats in (say) one minute. From this the number of miles per hour can be calculated. Or seven tenths of the number of feet per second will give the number of miles per hour. Good water should be colorless and transparent, free from taste or smell, and deposit no sediment. An average daily allowance for all purposes is (say) ten gallons per man and horse. One cubic foot of water = 6.23 (say 6½) gallons; one gallon weighs ten pounds.

To calculate the supply available from a running stream, use either of these two formulæ, in both of which B = average breadth of stream in feet, D = average depth in feet, and V = velocity in feet per minute: (1) $B \times D \times V \times 900$ = number of men for whom there is 24 hours' supply. (2) $B \times D \times V \times 6.23 \times 60 \times 24$ = number of gallons obtainable in 24 hours. And of course the number of gallons divided by 10 will give the number of men for whom there is a 24 hours' supply of water. Example: A stream is 2 feet wide, 6 inches deep, and has a velocity of 50 feet per minute. How many men will it supply with water in a day? $2 \times \frac{1}{2} \times 50 \times 900 = 45,000$ men. Answer. (Hutchinson's Military Sketching made Easy, p. 185, note 1, and p. 191.)

used for entanglements sometimes], direction, whether following track or country roads, stations, etc.

Villages.—Situation, if on a height, plain, or in a valley; surrounding country, kind of houses, nature and width of streets, etc.

Defiles.—Direction, whether straight or crooked; whether heights are accessible or not; nature of ground at inlet and outlet, width, etc.

Marshes, Ponds, Swamps.—Means of crossing; defensive value as an obstacle against the enemy; if passable for all arms, etc.

Springs.—Nature of approaches; if drinkable and abundant.

Valleys.—Extent and nature; towns, villages, streams, roads, etc., therein; obstacles for troops, etc.

Heights.—Whether easy or steep, whether good defensive positions offer or not, whether plateau is wide or narrow, whether passages are easy or difficult, ground broken or smooth, wooded or clear.

Cultivated Ground.—Nature and kind of crops. Suitable camping ground should be noted always, while a patrol of any kind should observe the features of the ground over which it has to pass, whether it has to report on it or not, and in every case any object that would furnish a good defensive position, such as a ditch, embankment, etc., should be noted.

Reconnoitering patrols are used to reconnoiter the enemy's position as well as observe his movements.

Harassing patrols are used for the purpose of disturbing and annoying the enemy, thus depriving him of sleep and rest.

Expeditionary patrols are sent out to capture sentinels or pickets, or to destroy roads, railroads, or telegraphs.

Pursuing patrols hang upon a retreating force and report promptly all information regarding its movements, location, and *morale*.

Exploring, reconnoitering, harassing, expeditionary, and pursuing patrols may be either strong or small; connecting patrols are always strong.

As already said, cavalry is the arm especially qualified for patrolling duties, but at night and in close, broken, or wooded country infantry is preferable and in fact indispensable. When possible, a small number of troopers should be attached to infantry patrols, as they can render signal service by taking back promptly and quickly important information.

As the conditions vary under which small infantry patrols are sent out, the following particulars should be observed: First, soldiers of some experience and intelligence should be selected and placed under a good non-commissioned officer or capable private. In the latter case the patrol is ordered to obey him. These men should be picked men and not taken arbitrarily from the right or left of a company. They should have aptitude for the duty and be of unimpaired vision and hearing.

The patrol commander receives explicit instructions in regard to the work expected of him, and he repeats his orders to the men of his patrol. He should be able to read his orders and write a clear report. These orders should clearly state the object and direction of the reconnoissance, the nature of the ground to be passed over, length of time to remain out, where reports are to be delivered, and if other patrols are sent out at the same time, the particular route to be followed. To explain, we will borrow the example given by Wagner: *

Captain (to sergeant of patrol): "Do you know the country in front?"

Sergeant: "No, sir."

Captain: "Well, you see that hill half a mile out—the road forks there. Small parties of the enemy are suspected in that vicinity. Move out and observe the fork and the open field to the left. Don't reconnoiter the ground at the right of the fork; another patrol will take care of that. If you see this patrol, don't mistake it for the enemy. Remain out until dark. Report to me at No. 2 Picket. Don't fire unless you have to."

The patrol commander must be sure that he understands his orders correctly, and, if necessary, should ask to have them repeated. He should have a watch, pencil, pad, and, if possible, a pocket compass. After receiving his orders he inspects his pa-

* Service of Security, etc., p. 118.

trol and sees that each man has sufficient ammunition and that none is sick, foot-sore, or under the influence of liquor. Men with colds who would be liable to cough or sneeze must be replaced by others who are free from this trouble. Arms and equipments must be arranged so as not to rattle or glisten. Before starting out the commander points out to the patrol the position of their own troops and a place for assembling in case of separation, choosing some prominent landmark if possible. He cautions the men against smoking and talking, and, if not already known, explains the following signals by which they are to communicate to him or each other: *

Attention, or, Do you see anything?

Wave the hand across the face, or whistle once.

Affirmative signal. (Yes.)

Raise and lower the arm vertically twice, or whistle twice.

Negative signal. (No.)

Extend the arm horizontally thrice, or whistle thrice.

Enemy in sight or hearing.

Hold the rifle horizontally above the head with both hands, holding it steady if the enemy is in small bodies, and raising and lowering it repeatedly if he is in force. To signal by whistle, whistle four times.

* These signals are used in addition to those prescribed in the Infantry Drill Regulations. See Wagner, p. 119.

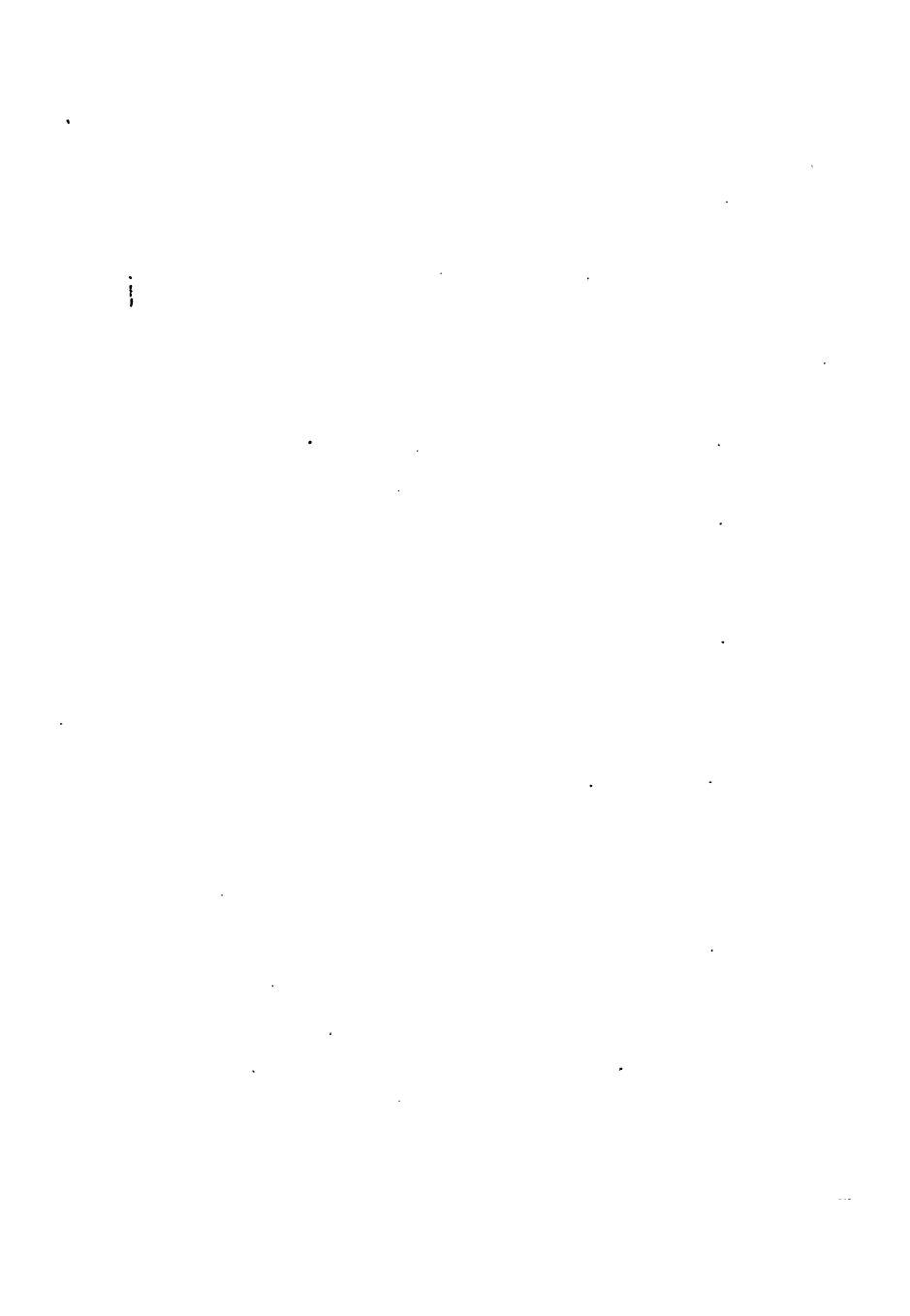
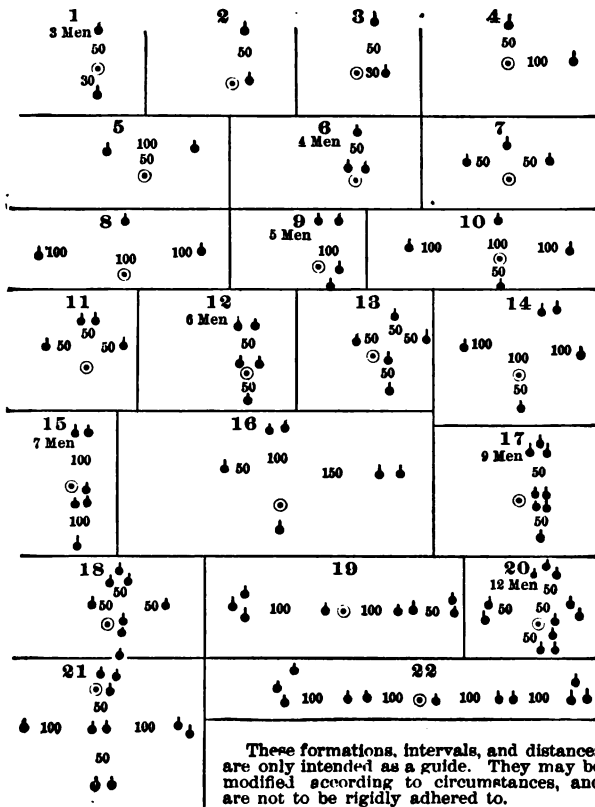


PLATE IX.



Theoretical formations for infantry patrols.

To ask for re-enforcements.

Extend the arm horizontally and wave it rapidly with circular motion, or give a long, continuous whistle.

At night, in foggy weather or very close country, the whistle will have to be relied upon; at other times it is to be avoided. When using the whistle, it should be used softly, with each note short, except when asking for re-enforcements. The mouth can be used when whistles are not provided. Other signals may be improvised or arranged to meet certain contingencies.

Formation of a Patrol.—Shaw * gives a number of theoretical dispositions and their explanations, of which the former, and a few of the latter, follow herewith.†

It will be noticed that First Principles govern in the formation of these patrols, just as in larger bodies. Let us take a patrol of three men, operating on a narrow road or front. The men follow each other in Indian file, the commander in the centre about fifty yards from the leading man (Fig. 1, Plate IX). If the road be wide or through fields, the men may be placed as in Fig. 2, the pointer being fifty yards ahead of the other two. As the ground opens out, the commander and second man may keep far-

* Elements of Modern Tactics, p. 173.

† See Plate IX.

ther apart (Fig. 3). If one flank is more exposed or dangerous, then the second man is placed farther out, as in Fig. 4. If both flanks are dangerous, the two men may march abreast, one hundred yards apart, as in Fig. 5, followed at fifty yards by the commander.

Four men march in a similar formation; a "point" about fifty yards in advance, the others with the commander (Fig. 6), or they may be detached and placed on each flank, as in Fig. 7, according to the nature of the route. In open country a greater extension is permissible (see Fig. 8).

With five men in open ground (Fig. 10), the patrol attains its first complete organization as a marching body, as it has an advance-guard, rear-guard, and flankers.

Figs. 11 to 22 inclusive explain themselves; like the foregoing, they are simply typical formations. In all patrol formation, the main thing is to form in such a manner as to facilitate the obtaining of information and guard against surprise, so that at least one man may escape if the patrol is cut off. Any disposition which accomplishes this object is right.

It must be remembered that although distances and intervals vary according to circumstances, still, the men composing a patrol should never lose sight of each other, else they could not signal to one another. On the other hand, they must not be so close that their combined field of view would not be

greater than that of one man. They should ordinarily be separated by intervals not less than about twenty-five yards, nor more than one hundred yards. The commander keeps the point in view, as should also the other men, unless the patrol be large or widely extended, in which case every man endeavors to keep in sight of the man next him toward the point. When the patrol is large enough the point consists of two men; this permits one man to scout while the other watches for signals from his right and left. Signals are generally transmitted to the patrol commander through the point. To assemble a patrol, the commander signals the point to halt and moves up to it with the rear-guard man or men. The other men on the flanks close in at once on the point, all regulating their pace to that of the commander.

General Conduct of a Patrol.—If practicable, a patrol should be marched to high ground before setting out, so that it may observe the region it is to explore and notice landmarks or prominent objects of any kind. It can thus get the general bearings, so that if for any reason the members become separated or lost they may be able to find their way back.

While advancing the men note any peculiarities of ground that could be useful to them in falling back, and, if necessary, where certain roads intersect, and there might be a doubt as to the direction they should return by, they must take the precaution to mark it

by broken branches, scores on the bark of trees or fences, heaps of stones, or by straw twisted or fastened about a tree or other object. In thus marking a path or road care must be taken that it is done so as not to attract the attention of, or betray the trail to a hostile patrol.

During the day they will move cautiously along hedges and walls, and, if possible, by hollow roads, ravines, or water-course lines, observing everything without being seen. They will disappear in woods and work through to the far borders on the enemy's side, whence, concealed from view, they may observe all that happens. In case of absolute necessity for halting a short time, a place not too close to habitations and one giving easy retreat should be selected, but patrols must not halt to *rest* before returning to camp.

When operating on high ground the patrol should keep under cover, maintaining a good lookout and avoiding any chance of being discovered by the enemy.

At night it is better to keep the patrol on lower ground, thus bringing any advancing foe into view against the sky-line, while the patrol remains safely in darkness.

If practicable, patrols should return by different routes from those taken in marching out, thus extending the field of examination and observation. And, while main routes should not be se-

lected to march upon, nor inhabited places entered, still, such roads and places must be observed, for in the case of the roads no large bodies of hostile troops could very well advance without making use of them. Villages, towns, etc., should be turned by a small patrol. At night or during foggy weather a patrol may have to use a road to escape losing its way, unless the country traversed is well known.

In the event of a patrol meeting another friendly detachment, they should recognize each other without noise and the commanders should exchange information, and each obtain from the other his name, destination, and strength of command, to report the same on return to camp. At night the one that first discovers the presence of the other must challenge and demand the parole and countersign.

Patrols must be vigilant and cautious always, and especially so when nearing the enemy. They must listen, and if suspicious noises are heard they must conceal themselves. If they see the enemy, they do not fire, but, hidden from observation, try to find out his strength and intentions.

If possible, one man returns to report the enemy's presence and rejoins the patrol later on.

When suddenly challenged by a hostile sentinel or patrol at night, the patrol should remain motionless and quiet. During the obscurity that prevails the enemy may possibly imagine himself mistaken, and either pass on or allow the patrol to retire. If

seen, however, it should attack vigorously and try to take prisoners, provided escape be impossible, but it is better to avoid than engage in a fight, for the noise of firearms might cause more mischief than would be offset by any mere victory over one of the enemy's small parties.

Should a patrol of the enemy succeed in getting sufficiently near to make it likely that it has gained important information, then an effort to ambuscade and capture it should be made at once.

When surprised by the enemy, a patrol should fight and resist with the utmost resolution unless the strength of the opponent be overwhelming and would make opposition useless. In that case, the patrol should scatter and reunite at the duly appointed rendezvous. After assembling it continues its reconnoissance, sending one man back with a report.

If, when first starting out, a patrol should come upon the enemy in force, it must open fire and continue firing as rapidly as possible while retreating. This will give the camp warning of threatened danger and permit of steps being taken to meet it.

Should a patrol, while reconnoitering, meet with country people or civilians coming from the direction of the enemy they should be carefully questioned. Military terms, etc., should be replaced by the simplest language. It will usually be found to be the case that ignorance rather than untruthfulness

is to be looked for. Persons encountered should be asked in general what they know about the enemy, his whereabouts, condition of his troops and horses, strength, *morale*, etc. In active service the rule is that persons travelling in the enemy's direction are treated differently. They are halted and never permitted to proceed unless they can show a genuine pass from proper authority, and if they offer any resistance they must be threatened, and if necessary may be tied to a tree or post, or even gagged, but harsh measures must never be used when gentler will answer.

Guides, when employed, should be treated kindly and never chaffed or threatened by the men. The commander alone communicates with the guides and warns them that any treachery will be paid for with their lives. Drovers, peddlers, and livery-stable men will generally be found to be the best guides.

Reconnaissance of a Small Infantry Patrol over Different Kinds of Ground.—The following methods of conducting a small infantry patrol under various conditions are given as suggestions only, as each case would present its own difficulties and problem. But it may be said just here that these suggestions are the result of careful compilation by Shaw,* and are in a great measure taken by him from the German and French regulations and instructions for in-

* Page 177 *et seq.*

fantry patrols, all revised, however, with regard to the Franco-Prussian War. Our own text-book (Wagner's) has also been used.

Close Country.—In a close country the advance is difficult from the very beginning, owing to the possibility that an enemy may be concealed behind every obstacle and sheltering cover. The patrollers, therefore, must move with the greatest circumspection, peering cautiously about and advancing from one point to another rapidly, taking advantage of any bank, hedge, or other cover to hide them from view. The men advance one at a time, stooping while running. They must endeavor to discover the enemy before he discovers them.

Open Country.—Here the danger of surprise is less, but the difficulty of concealment greater. Hence patrollers must be even more cautious in order to avoid detection by the enemy. They take advantage, therefore, of every fold of the ground, neglecting nothing to conceal their advance. Where there are fences or other cover, they work along close to them, or in a ditch. They must look out more sharply for the enemy, as, owing to the nature of the ground, there will be fewer aids to their advance.

When scouting in advance of a column (as in the case of the advance-guard), they must be careful that their examinations do not retard its advance. Their researches during such a reconnoissance must

be not only exact but rapid, as time is always an important element in such operations.

Cross-Roads.—When a patrol comes to a branch road, two men, one in advance of the other, should be sent along it until they arrive at the first turn, the patrol meanwhile halting. From this point the two patrollers will generally have a view for some distance up the road. If nothing suspicious is seen, the men return and the patrol continues on. If anything suspicious or doubtful is seen, then one man runs back quickly to the patrol to report, while the other remains to watch. Where the patrol is small, only one branch of a cross-roads is examined at a time, as it is better to send two men in one direction than one man along each road.

Crossing Fields.—In traversing fields, the hedges, ditches, banks, and the least accident of ground must be utilized to the fullest extent. If cover be found running parallel to the general direction, the patroller must keep such cover between himself and the probable quarter in which the enemy may be. If cover be found that is perpendicular to the advance, then he must halt behind each such obstacle, look about him, and rapidly clear it, pushing on to the next point.

Ascending Hills, Knolls, or Heights.—When approaching high ground, the patrol, if large enough, sends one or more men to each flank round the base of the hill, while the leading patroller advances cau-

tiously to the front until he arrives at the summit. If the patrol consists of only three or four men, then they advance in Indian file,* each man following at such distance as to be able to see the others and transmit signals to the rear, if necessary, to any approaching column, such as an advance-guard. If the leading man sees anything doubtful, he signals the commander, who halts the patrol and advances to reconnoiter. If all be well, he signals to advance. The point of an advance-guard is essentially a reconnoitering patrol and would operate in a similar manner, only it should move forward more resolutely and confidently than an independent or isolated patrol, as it is flanked by friendly groups who have also reconnoitering work to do, and is supported close at hand in the rear.

Defiles, Sunken Roads, Cuts, etc.—If the sides or heights of a defile can be searched without too much loss of time they should be reconnoitered by flankers before the patrol enters. If the heights are inaccessible or time is wanting, then a patrol pushes through at double time, the men being separated by the same distance as when ascending a hill. Where a defile is long the pace must be moderated. Each man follows his predecessor before he gets out of view, and, if a patrol is large enough, a signal of safety or danger can thus be transmitted through the entire length

* See Fig. 1, Plate IX.

of a defile. In no case but that of absolute necessity should a force enter a pass through hills or woods, if the enemy is near, without both flanks being thoroughly reconnoitered by advanced patrols. In the case of hills, the nearest crests should be occupied if possible. In irregular warfare this is very important. In the case of sunken roads or cuts, the same rules apply. It will be found usually that the crests on either side can be occupied, and hence they should be.

Bridges.—The front of a patrol is necessarily contracted before crossing a bridge. The structure should first be examined to see if it has been tampered with. This is the duty of the two leading men of a point when covering the advance of a column. If all is right, the patrol passes over at double time in the same manner as was explained in the case of a defile, and resumes a proper formation on the other side.

Streams or Fords.*—When meeting a ford or

* Fords may be found by dropping down a river in a boat with a sounding-rod, or by noticing tracks leading to and from them, or by questioning villagers. A river is often fordable obliquely when it can not be forded straight across. The depth of a ford should be ascertained personally. Safe limits are three feet for infantry, four feet for cavalry, two feet four inches for guns. The nature of the bottom is of consequence. If it is sandy, the depth will increase sensibly if the ford is much used, as the sand gets stirred up and carried away by the current.

It might be useful to note here that, in describing a river,

stream across which there is only a narrow passage, the patrol reduces its front, and, after crossing, spreads out to its proper formation. If stopped in its advance by a water course, information must be gained from the inhabitants as to the fords, or else soundings must be resorted to. This is imperative if a column is following; but acting alone, a patrol may make a detour, provided no other expedient is possible.

Small Woods or Groves.—Here the patrol enters in skirmishing order, or in some such formation as shown in Figs. 8, 10, 19, 22, Plate IX, with intervals no greater than will permit of mutual observation and assistance. The borders should be well searched, the patroller remaining just inside. After arriving at the farther edge, the patrol conceals itself and looks about for any signs of the enemy before proceeding across the clear ground in front.

If the underbrush in a wood will not permit this mode of examination, then a road must be followed and reconnoitered, as in the case of a defile, omitting

the terms north or south bank are misleading. In a winding river the same bank may sometimes be the north and sometimes the south bank. Facing the direction in which the current is flowing, the bank on the right hand is the right bank, and that on the left hand is the left bank. (*Military Sketching made Easy*. Hutchinson, p. 185, note 3.)

Rapidity of a current is described as follows: One mile an hour is considered "sluggish"; two miles, "swift"; three miles, "rapid"; four miles, "very rapid"; six miles, "a torrent."

the double time, and if a cross-road is met with it must be examined as explained for cross-roads. In the last two cases the patrol would be assembled first.

Inclosures (Gardens, Parks, Cemeteries).—Great care must be exercised in approaching inclosures, as they frequently prove to be regular traps or ambushes. The exterior is first examined by the leading reconnoiterers to insure that no enemy is hidden behind one of the faces or angles of the inclosure, after which the interior is inspected.

Houses, Farms, etc.—When a house or farm is to be reconnoitered, it should be done first from a distance in order to see if it is likely to be occupied by an enemy. If the observation proves satisfactory, it is then approached by two men, the rest of the patrol concealing themselves and watching.

If practicable, four men should approach a house so as to examine the front and rear entrances at the same time, but only one man enters, the rest remaining outside to give the alarm if necessary. Information is obtained from the owner or occupants, and if everything appears safe it is then searched by two men, a guard always being left outside. Should the searchers not reappear after a short time, or should they not answer when called upon, the man or men outside will fire a signal shot. Should no response be forthcoming, information is taken back to the rear by one of the men, the remainder, if any, remaining in observation until re-enforcements arrive.

Patrols should not remain in the neighborhood of any house longer than necessary; this is to avoid giving information to any subsequent hostile patrol that might visit the place.

Villages.—A small detached patrol should never enter a large village. They should simply reconnoiter from without.

In the case of villages or hamlets, a small patrol may enter if the presence of the enemy is not suspected. It should be formed to meet the general rules. A suitable disposition in many cases would be in single file, every other man on the opposite side of the street. After passing through, a detail of two men might be sent back for further information while the remainder of the patrol would take a good position to observe and secure a line of retreat. Should the village be occupied by the enemy, some indication of his presence will be noticeable. An inhabitant of an outside building, or a child or youth, would be preferable to inquire of, as he would be more liable to disclose, or fail to conceal the truth of any information sought after. In war time, when patrols are strong, the custom is to seize the post office, telegraph office, and railroad station and appropriate all important papers. When the patrol is part of an advance-guard, it seizes the mayor and postmaster of the place and turns them over to the vanguard commander, together with all papers taken. Besides official documents, private letters often reveal

valuable information regarding the arrival, departure, and movement of troops, etc.

At night villages are approached with greater caution than during the day. The patrollers conceal themselves and listen for a while. No indications of the enemy being noticeable, the leading men creep up to the nearest door or windows and listen and try to see within. The back alleys, gardens, etc., are used rather than a main thoroughfare, and if by these means no information can be secured, then the patrol must seize an inhabitant and gather from him the desired information.

The best time for approaching villages is when it is yet too early for the villagers to be up and about, and still light enough to see.

Reconnoitering the Enemy in Position and on the March.—In reconnoitering the enemy in position it should be remembered that outposts have been established, and therefore the patrol will have to find out the location, direction, and extent of the line of sentinels (observation); the number and position of sentinels and pickets and how flanks are protected, whether by natural barriers or obstacles or by fortifications.

During this examination, the best spots or locations for getting through the line with fewest chances of detection should be noted, as well as the direction of roads, and especially the roads behind the pickets.

If these run laterally, they could be used by a force sent out to capture them.

If the patrol should pierce the line of observation (sentinels) it may be able to approach a picket sufficiently near to hear the parole and countersign, but the advantages to be gained should be worth the risk, for a patrol thus placed would stand great chances of capture.

Dawn is the best time for observation, but a patrol should be in a good position and concealed before day breaks. It could then see the relieving of the out-post, and discover its strength, as well as the positions of pickets and sentinels, etc. Any indications of changes in positions or preparations for advance or retreat must be reported back immediately.

When reconnoitering the enemy on the march the patrol should be careful to be outside the flankers of the column and concealed in some inconspicuous locality. As shown elsewhere, points and flankers of an advance-guard are also reconnoitering patrols, and they will search all suspicious places capable of hiding an enemy.

One of the best places is a ditch or wallow which can hide a patrol and not be visible even at a short distance.

The patrol should note the direction, pace, and breadth of the column, also the time required for it to pass a given point.

In order to estimate approximately the strength

of a column on the march, the following data will assist in arriving at a reasonably safe conclusion:

In one minute a given point will be passed by
 200 infantry in column of fours, in quick time;
 150 cavalry " " " " at a walk;
 100 " " " " " if behind infantry;
 260 " " " " " at a trot;
 4 guns, if in rear of infantry.

Where the entire column is seen, and its length can be learned or estimated by known distances between the several points which it passes, then the strength can be estimated by allowing

1 yard for 2 infantrymen,

1 yard for 1 cavalryman,

20 yards for 1 gun or caisson;

but allowances must be made for any lengthening out consequent on the state of the weather, condition of the roads, and discipline of the troops. The allowance made for the lengthening of the column is usually figured at from one quarter to one half the total length.*

Military Indications.—The commander of a patrol should be familiar with and know the value of signs and trails. Footsteps and other marks on a road often show the direction, composition, and approximate strength of a column, as well as the time at which it passed. Ground evenly trodden would indicate infantry; if horseshoe imprints appear, cav-

* Wagner, p. 135.

alry was probably present. Ruts or wheel marks would presuppose artillery or wagons with the column. The proportionate strength might be approximated roughly by the nature and numbers of the different marks, the print of hoofs outside the wheel tracks distinguishing cavalry from draught horses. Fresh tracks of course indicate the recent passage of troops.

With open country numerous hoof marks on the sides of the route of infantry and artillery would suggest a hurried forward movement with cavalry on the flanks, in order to have the entire force together ready to deploy. If on a narrow front, they would indicate a feeling of security.

Steady and bright reflection from arms would indicate advancing troops; dull or intermittent, retreating; rays slanting from left to right, downward, a movement to the observer's right; from right to left, downward, to the observer's left.

Dust arising from the march of troops indicates direction, strength, and the composition of a column. With infantry marching, the dust is low and thick; with cavalry, it is higher and floats away more rapidly. Artillery and wagons raise disconnected and irregular clouds. Thus, by noting the length of the line of dust and the intervals, the strength and character of a column may be approximated roughly, but the effect of the wind must be noted and included in any calculations.

Whenever the smoke as well as the light of a fire is seen, the fire is nearer to the observer than when no smoke can be observed. When facing the sun, objects generally appear nearer than with the back to the light.

Rumbling of vehicles, neighing of horses, braying of mules, and barking of dogs generally indicate the arrival or departure of troops. The braying of mules is an almost certain sign of arrival. Heavy explosions and large fires would indicate destruction of supplies before a retreat.

A large number of boats collected at a river's bank would suggest preparation to cross; if burned, it would indicate retreat. Important bridges destroyed suggest a long retreat.

The noise which a large column of troops makes on the march is distinct and continuous; that made by a small body is not so plain, and is intermittent.

In calm, clear weather, or if a light breeze is blowing toward the reconnoiterer, a company of infantry, marching on a firm road, can be heard about five hundred or six hundred yards off; a troop of cavalry, at a walk, six hundred or seven hundred yards; a troop at a trot or gallop, artillery and heavy vehicles, nine hundred to one thousand yards.

On a clear day, and with good eyesight, a reconnoiterer, according to Wagner, should discern objects on the sky-line as follows:

Church spires and towers...	9 to 12 miles;
Windmills.....	5 to 7 “
Chimneys (light color).....	2 to 2½ “
Trunks of large trees.....	2,000 yards;
Single posts.....	1,000 “
Window panes.....	500 “

Troops can be seen at two thousand yards, at which distance a mounted man looks like a dot; at twelve hundred yards infantry and cavalry can be distinguished from each other; at one thousand yards a line of men resembles a broad belt; at nine hundred yards troops are clearly seen; at eight hundred yards the motion of arms and legs is perceptible; at six hundred yards the head of a man appears like a small ball, and the files of a squad can be counted.

The remains of camp fires show by their freshness whether the place (camp or bivouac) has been recently occupied or not, while the amount of cinders and rubbish will help to decide upon the length of stay. The number of fires (when nature of weather and supply of fuel are considered) will frequently assist in estimating approximately the strength of the occupants.

In cold, wintry weather a fire to ten men is the usual allowance; in warm weather one fire is allowed to a company, for purposes of cooking, drying clothing, etc. In estimating the length of a stay (besides cinders, etc.), the freshness of grain, straw, dung, or entrails of fowls and animals will

show approximately the length of time the camp was occupied and when abandoned.

Uniforms, equipments, harness, etc., that have been abandoned will show the arms or regiments to which the force belonged.

The behavior of the inhabitants also offers indications to be noted. If they appear sullen or anxious, their army is probably distant; if exuberant or insulting, their army is probably near at hand.

Reports.—In addition to the requisites for and methods of sending reports explained elsewhere, it must be remembered in all cases that information to be of value must be “early, ample, and accurate,” as it could be of little use if received too late to oppose the intentions of the enemy. “Tardy information is almost as bad as none at all; and bad scouting is a source of serious danger from the false confidence it engenders.” *

Strong Infantry Patrols.—The rules and principles governing in the case of small patrols are generally applicable to strong patrols as well, in some cases even more so. The strength of strong patrols should be equal to the accomplishment of the purpose for which they are sent out, and their composition with a view of the extent of ground they have to cover. The commander must employ all the usual methods of utilizing ground either for avoid-

* Clery, p. 55.

ing the enemy or for defense, and be sure of his line of retreat. The formation is similar to that of a column on the march with point, flankers, and rear groups, or deployed ready for action, according to circumstances. The larger the strong patrol, the less secrecy is observed in its movements.

CHAPTER IX.

MARCHES, ETC.

TROOPS moved with the intention of arriving at a certain objective are said to move by marches, except when on a battlefield; here any change of formation or position is termed an evolution or maneuver.*

In active service marches are called strategical or tactical; by this is meant, in the first case, all early movements of a force in a campaign by which troops are marched and placed so as to carry out the plans of a commander. In the second case—tactical—is meant all movements within touch or reach of the enemy which prelude or follow a battle; so that while in one case troops usually march as best answers their then present purpose, convenience, and health, in the other they must take such precautions as will enable them to meet the enemy under the best possible conditions.

Some of these precautions have been explained in our consideration of covering and flanking detachments (advance-guards, etc.).

* See the definitions in Infantry Drill Regulations.

The most important aim of tactical marches is to bring the force employed into its place or position as quickly as possible without undue fatigue and in the fittest condition for action.

Marches have been seen to be divided into forward, flank, and retrograde marches, and retreats. The methods used for their protection have been pointed out.

To conduct a march successfully the commander must have his men in good condition. The duty of seeing that the health of his men is cared for devolves principally upon the captain.

In campaigning, sickness disables more men than bullets. Proper food and unnecessary exposure and fatigue will help to keep a soldier in health and strength, but they will not enable him to march if his feet are sore.*

The chief cause of sore feet is improper shoes. Section 679 of the regulations of the State of New York says that boots and shoes are to be "of black leather, and to extend above the ankle. It is impracticable for the State to issue shoes, but commanding officers should impress on their men the necessity of

* In *The Soldier's Sore Foot*, by Surgeon-Captain Beevor, Scots Guards, it is related that in the German army of 400,000 men not less than 60,000 are annually reported sick from sore feet. Before the battle of Sedan a corps of 7,500 men suffered a loss of 166 men in two days from this cause.

each having a pair of suitable walking shoes constantly on hand for emergencies."

This recommendation is not fully carried out in practice. It is a usual thing to see a large proportion of the men of most commands appearing under arms wearing improper shoes for marching. In fact, the character and suitability of the shoe are not taken into account in the spirit in which the regulations manifestly intended that they should be. Even in the case of shoes designed for regular army use and made by military contractors, it has been found abroad that proper consideration has not been paid to the question of ease and comfort. A number of suggestions have been made by Deputy Surgeon-General W. Carden Roe (retired), in the English Army and Navy Gazette, in a paper entitled *The Soldier's Boot*.

He lays down the principle first of all that it is quite impossible to make comfortable boots upon lasts that do not in the more important particulars resemble the feet, no matter what materials may be used or what care may be taken in their manufacture.

As, of all parts of the infantryman's apparel, the shoes are the most important, it is absurd to overlook them. If they do not fit properly, the fact that they are strong and heavy only adds to the discomfort. The ordinary last does not make provision for the comparatively large size of the great toe, especially over the joint; it is also too thin or flat over the other toes, and the upper leather over the heel and

tendon Achilles is cut too straight; hence it is that at those points painful blisters of the feet occur most frequently. This may not be apparent under the ordinary conditions of our military work in the Guard, but it would soon become manifest under the strain of a long, hard march.

This authority suggests for uppers a fairly stout and pliant "crupp" leather of best quality; for soles, a well-seasoned, close-grained, back-tanned cowhide; the style of boot (or shoe) to be a laced ankle pattern, called the Blücher or Derby.

"The sole of the boot as now made," says Surgeon-General Roe, "is very faulty, and a fertile cause of some of the most painful forms of foot-soreness, for, as the sole of the foot comes in contact with the ground at every step, a blister in that position at once disables, and even where a blister does not occur the sole of the foot may be so pressed upon and bruised by uneven or convex soles as to make progression very cramped and painful. The unevenness alluded to is most frequently caused by nails, or by the insertion of very unnecessary slips of leather or 'filling' under the centre of the sole. This filling, which is generally responsible for the inner sole being convex on its upper surface, is of no use whatever, and is simply a fraud introduced for the purpose of giving the sole a fictitious strength and stiffness."

As regards the nails used for protecting the leather and giving a firmer foothold, this writer sug-

gests that they be made "of malleable steel, which would neither break nor wear out quickly, that their shanks be sufficiently long to pass right through the outer sole, that the outer sole be nailed before it is sewn on, and that the shanks or stems of the nails be turned down or clinched on its inner or upper aspect, thus effectually preventing the nails falling out of the sole or causing the lumps or unevenness above complained of." He also recommends that "after the stems of the nails have been so clinched, the outer sole before it is sewn on should be thickly coated on its upper aspect with gutta-percha solution, and instead of a filling of slips of leather there should be placed over the clinches and gutta-percha coating a thin sheet of cork, such as cork soles are made of, which should extend as far as the line of sewing which attaches the sole to the welt."

This manner of making the soles would give a durable, comfortable, and water-proof shoe, and the foot would have a perfectly flat and even surface to rest upon. Heels should be broad and very low, cut down straight behind, and a few large nails of the same material as those suggested for the soles, and similarly clinched, should be used; they would serve to prevent slipping, etc.

It is further shown that better than any boot-tree is the following method of fitting a shoe, which, if a bit troublesome and long, will insure a result most desirable in foot gear: The soldier first

immerses the boots or shoes completely in water for three or four days, or until every part of the leather is soft and pliable; he then wipes them out, and, having put on a pair of heavy woolen socks, starts out for three or four hours' walk. This will give the exact shape of the foot to the shoes, which should be carefully preserved on taking them off, after which they are packed tightly with dried oats and placed in a cool spot to dry slowly. When they are dry, and before the oats are removed, the seams should be coated with molten beeswax to protect the thread, and the whole of the outside well dressed with neat's-foot oil every second day for a week, winding up with a coating of currier's dubbing. The oats may then be shaken out and the boots used, "with the full assurance that they will be found most comfortable, damp-proof, and more durable than two pairs taken into use in the ordinary way." The use of oats counteracts by swelling (after coming in contact with the moisture) any shrinkage in the leather and tendency to resume the original shape. To prevent the latter occurring after the oats have been removed, the leather should be saturated with animal fat. This will not only effectually prevent its ever again becoming saturated with water or shrinking, but will preserve the leather and render it soft, pliable, and durable.

It is very important that a soldier's feet should be attended to and washed daily at the end of a

march if possible, in order to soften the skin and aid in preventing blisters and chafing. It has been found that hard soap applied to the feet and socks or stockings greatly assists in warding off these troubles. To promote general health, a soldier should eat and drink sparingly on a march; this rule, if followed, will give good results, while the habit of attacking the contents of a pack or haversack and draining at a canteen at every opportunity will cause the recruit or inexperienced soldier to break down. The bowels should be kept in condition by regular daily evacuations, and the entire body washed whenever practicable.

The load a soldier has to carry has been and is still a troublesome question. It ought to be as light as possible, and experiments recently made with aluminum have tended to reduce the weights of various parts of a soldier's equipment and will doubtless play a more important rôle later on in this direction.

Intrenching implements—a small spade with a handle forming a pick, or spade and pick—are carried by most European armies. In England, fifty per cent. of the men carry these tools, and the weight of a soldier's entire equipment, including rifle and one hundred rounds of ammunition, is about fifty-six pounds.*

* General Skobeleff armed the whole of his force with large spades after the siege of Plevna, and so fully had the men become convinced of the value of that tool that they made no

The weight carried by our regulars is approximately the same, as shown by Lieutenant Campbell, United States Army.* He puts it as follows:

1. A rifle.....	10 lbs.
2. A belt with 100 cartridges.....	7½ "
3. A haversack with knife, fork, spoon, tin cup, meat can, and three days' rations	10 "
4. A canteen filled with water.....	4 "
5. A flannel shirt, undershirt, drawers, and stockings.....	2½ "
6. A pair of shoes.....	2½ "
7. A blanket and half-shelter tent	7 "
8. An overcoat or waterproof	6 "
Total.....	49 lbs.

Add soap, comb, towel, etc., and the total will be easily fifty pounds. The knapsack or pack is omitted as not being likely to be used.

When halted, a column on the march would rest either in route formation or would be disposed according to tactical requirements, as the case might be. In forming for a possible emergency, a desirable location should first be chosen, high ground be-

difficulty about carrying their spades during their struggles through the snow-laden passes of the Balkans. In all their fatigues the spade was the last article they would part with after their rifles and ammunition, and those heavy tools were carried to the gates of Constantinople. Yet Skobelev's column was an eminently active and aggressive force. (Major-General Brackenbury, R. A., *Field Works*, p. 34.)

* *Manual for Field Service*, p. 82.

ing usually selected which would allow of a good view for the covering groups.

As a column marches it usually lengthens; such elongation causes extra fatigue to a foot soldier by reason of the fact that checks become more frequent and the pace more unsteady.

When a force is large it moves by several roads when possible; this facilitates bringing up supplies and puts a larger force in readiness for deployment for action. But as combined action is the object of all movement, separation would lessen the chance of such action; therefore, if a force is moving by separate roads it should provide for intercommunication by either connecting files or intermediate patrols.

The distribution of the different elements of a marching force is dependent upon the proximity of the enemy. When he is near, it is formed with a view to ready conversion into order of battle. When distant, less pressing considerations govern. Usually the artillery is placed forward, as it opens the first stages of an engagement, while cavalry acts after the other arms have produced some effect; it is placed generally in the rear, except such portions as are employed in screening the advance or doing patrol work. General details for governing a march are given in the Infantry Drill Regulations, paragraphs 651 to 659 (1891).*

* These will be seen to cover the distance of the average march—fifteen to twenty miles per day; the conducting of

In calculating the time necessary to march from one place to another, it will be approximately safe to allow 90 yards per minute for infantry (paragraph 245, Infantry Drill Regulations) and 100 yards per minute for cavalry and artillery. Thus, should the distance be known, the time required for moving from one point to another is easily arrived at. For instance: Captain A. is ordered by Colonel B. to be at a certain place 6 miles distant at 7 A. M. next day. When should Captain A. start? Answer: 1 mile = 1,760 yards, 6 miles = 10,560 yards, which divided by yards traveled per minute, $90 = 117$ minutes 20

large bodies in separate columns; the order of march and time for subdivisions to start; also points where the elements enter the main route; alternate leading of regiments, brigades, etc.; right of way for artillery and trains; provision for a corps of pioneers for each brigade for the purpose of removing obstacles and preparing the way for the troops (through fences, hedges, walls, ditches, small streams, etc.), so as to avoid delay and lengthening out of column; pioneers to be either mounted or in wagons; marches to commence after breakfast, with halt of fifteen minutes for relief of men and adjustment of accouterments and clothing, after a half to three fourths hour march; usual rest per hour ten minutes; on long marches a half to three fourths hour allowed to prepare meals; halts to be made in vicinity of wood and water; long distances overcome by change in gait; permission to leave ranks granted by captains; passes for sick men to surgeons, etc.; provost-guard of a brigade marches in its rear; officers and non-commissioned officers to suppress straggling; duty of chief commanding officers during checks, etc.

seconds to march without a halt. But allowing 10 minutes' rest per hour for each halt, then 117 minutes 20 seconds must be divided by 60—10, or 50 minutes, which equals 2 hours 17 minutes and 20 seconds. This subtracted from 7 A. M. shows that Captain A. must start at 4:42:40, or practically 4.40 A. M.

Thus all problems of this nature are easily solved. But a column equal to an army corps of all arms would probably not exceed two miles per hour, and a division two and a half miles, allowing for brief halts. Smaller bodies naturally move quicker.

Two historic examples of field orders are given herewith, for the purpose of showing the details involved in a movement of large forces:

SPECIAL FIELD ORDERS NO. 120.

HEADQUARTERS MILITARY DIVISION OF THE MISSISSIPPI.

IN THE FIELD, KINGSTON, GA., *November 9, 1864.*

I. For the purpose of military operations this army is divided into two wings—viz., the right wing, Major-General O. O. Howard, commanding the Fifteenth and Seventeenth Corps; the left wing, Major-General H. W. Slocum, commanding the Fourteenth and Twentieth Corps.

II. The habitual order of march will be, whenever practicable, by four roads, as nearly parallel as possible, and converging at points hereafter to be indicated in orders. The cavalry, Brigadier-General Kilpatrick commanding, will receive special orders from the Commander-in-chief.

III. There will be no general train of supplies, but each corps will have its ammunition and provision train distributed habitually as follows: Behind each regiment should follow one wagon and one ambulance; behind each brigade should follow a due proportion of ammunition wagons, provision wagons, and ambulances. In case of danger, each corps commander should change this order of march by having his advance and rear brigade unencumbered by wheels. The separate columns will start habitually at 7 A. M. and make about fifteen miles per day, unless otherwise fixed in orders.

IV. The army will forage liberally on the country during the march. To this end, each brigade commander will organize a good and sufficient foraging party, under the command of one or more discreet officers, who will gather, near the route travelled, corn or forage of any kind, meat of any kind, vegetables, corn meal, or whatever is needed by the command, aiming at all times to keep in the wagon trains at least ten days' provisions for command and three days' forage. Soldiers must not enter the dwellings of the inhabitants or commit any trespass; but during halt or camp they may be permitted to gather turnips, potatoes, and other vegetables, and drive in stock in sight of their camp. To regular foraging parties must be intrusted the gathering of provisions and forage at any distance from the road traveled.

V. To corps commanders alone is intrusted the power to destroy mills, houses, cotton gins, etc., and for them this general principle is laid down: In districts and neighborhoods where the army is unmolested no destruction of such property should be permitted; but should guerrillas or bushwhackers molest our march,

or should the inhabitants burn bridges, obstruct roads, or otherwise manifest local hostility, then army corps commanders should order and enforce a devastation more or less relentless according to the measure of such hostility.

VI. As for horses, mules, wagons, etc., belonging to the inhabitants the cavalry and artillery may appropriate freely and without limit; discriminating, however, between the rich who are usually hostile, and the poor and industrious, usually neutral or friendly. Foraging parties may also take mules or horses to replace the jaded animals of their trains, or to serve as pack mules for the regiments or brigades. In all foraging, of whatever kind, the parties engaged will refrain from abusive or threatening language, and may, when the officer in command thinks proper, give written certificates of the facts, but no receipts; and they will endeavor to leave with each family a reasonable portion for their maintenance.

VII. Negroes who are able-bodied and can be of service to the several columns may be taken along; but each corps commander will bear in mind that the question of supplies is a very important one, and that his first duty is to see to those who bear arms.

VIII. The organization at once of a good pioneer battalion for each corps, composed, if possible, of negroes, should be attended to. This battalion should follow the advance-guard, should repair roads and double them, if possible, so that columns will not be delayed after reaching bad places. Also, corps commanders should practice the habit of giving the artillery and wagons the road, and marching their troops on one side; and also instruct their troops to assist wagons at steep hills or bad crossings of streams.

IX. Captain O. M. Poe, Chief Engineer, will assign to each wing of the army a pontoon train, fully equipped and organized, and the commanders thereof will see to its being properly protected at all times.

By order of

MAJOR-GENERAL W. T. SHERMAN;

I. M. DAYTON, *Aid-de-Camp*.

Referring to this order General Sherman said: "The greatest possible attention has been given to the artillery and wagon trains. The number of guns had been reduced to 65, or about 1 gun to each 1,000 men, and these were generally in batteries of 4 guns each. Each gun, caisson, and forge was drawn by 4 teams of horses. We had in all about 2,500 wagons with teams of 6 mules each, and 600 ambulances with 2 horses each. The loads were made comparatively light, about 2,500 pounds net, each wagon carrying in addition the forage needed for its own team. Each soldier carried on his person 40 rounds of ammunition, and in the wagons were enough to make up about 200 rounds per man, and in like manner 200 rounds of assorted ammunition were carried for each gun. The wagon trains were divided equally between the four corps, so that each had about 800 wagons, and these usually on the march occupied 5 miles or more of road, while the men, with the exception of the advance- and rear-guards, pursued paths improvised by the side of the wagons, unless they were forced to use a bridge or causeway in common."

The next example of a field order is the one issued by the Crown Prince Frederick before the action of Weissenburg, August 4, 1870: *

HEADQUARTERS, LANDAU, *3d August.*

It is my intention to-morrow to advance with the army as far as the Lauter, and to throw vanguards across it. With this object the Bienwald will be traversed on four roads. The enemy is to be driven back wherever he is found. The separate columns will march as follows:

I. Bothmer's Bavarian division will continue as advance-guard, move on Weissenburg, and endeavor to gain possession of the town; it will guard its right flank by moving a suitable detachment *via* Böllenborn to Bobenthal. It will break up from its bivouac at 6 A. M.

II. The remainder of Hartmann's corps, inclusive of Walther's division, will break up from its bivouac at 4 A. M., and move, avoiding Landau, *via* Impffingen and Bergzabern upon Ober-Otterbach. The trains of the corps will move forward as far as Appenhofen in the course of the forenoon.

III. The Fourth Cavalry division will concentrate to the south of Mörlheim at 6 A. M., and march *via* Insheim, Rohrbach, Billigheim, Barbelroth, Capellen, as far as the Otterbach, 4,000 paces eastward of Ober-Otterbach.

IV. The Fifth Corps will break up from its bivouac at Billigheim at 4 A. M., and march *via* Barbelroth and Nieder-Otterbach to Gross-Steinfeld and Kapsweyer. It will form its own advance-guard, which will cross the Lauter at St. Remy and the Wooghäusen, and place

* Home's Précis of Modern Tactics, p. 115.

outposts on the heights on the far side. Trains remain at Billigheim.

V. The Eleventh Corps will start at 4 A. M., and move *via* Steinweiler, Winden, Schaidt, across the Bienwald to Bienwald hut. It will form its own advance-guard, which will press forward over the Lauter and place outposts on the heights on the far bank. Trains at Rohrbach.

VI. Werder's corps will march along the road to Lauterberg and endeavor to gain possession of that town, and place outposts on the far bank. Trains at Hagenbach.

VII. Von der Tann's corps will break up from its bivouac at 4 A. M. and move along the main road *via* Rülzheim to Langenkandel, to the westward of which village it will bivouac. Trains remain at Rheinzabern. Headquarters at Langenkandel.

VIII. My position in the forenoon will be on the heights between Kapsweyer and Schweigen, and, as far as I can foresee, my headquarters will be transferred to Nieder-Otterbach.

(Signed)

FRIEDRICH WILHELM,
Crown Prince.

Before setting a large force in motion it is necessary to arrange and decide upon—

The place from which it is intended to operate, or the base of operations.

The plan or scheme by which it is to move on the objective point.

The route to the objective point, or the line of operations.

At night care must be taken that the right road is followed and that the men are not allowed to fall out or lie down during occasional checks or temporary halts. Cavalrymen should keep awake, for, if they fall asleep, their horses are apt to stumble or fall and thus create confusion. No noise whatever should be allowed during a night march.

As a rule, night marches are made only when an object to be attained can be accomplished in no other way. They are always tiresome, the men straggle, are liable to lose their direction, and are unfitted for their work the next day.

All safeguards and precautions used by day must be employed at night, and such others as may be indispensable, such as guides, details left at cross-roads to indicate the direction, etc. Sending detached parties out for purposes of security should be avoided, if possible, as they are not only liable to stray or be delayed from rejoining the column, but are likely to be mistaken for the enemy.

One of the more recent night marches—that of Tel-el-Kebir—is described by General Clery as follows: *

“Here the necessity for a night march was imperative. The enemy’s position was one of great strength, and such that an advance against it by daylight must, even if successful, be attended with very great loss.

* Minor Tactics, page 98.

It consisted of a continuous line of earthworks formed of a parapet and ditch, interspersed with redoubts. The approach to this position was a gradual ascent that constituted a prolonged glacis; so that any hostile force advancing against it lay wholly exposed to fire under conditions most favorable to the defenders. Hence the commander-in-chief of the British force decided to make a night march that would bring his force by daylight close to the intrenchments, and at once storm the position. But the plans for executing this had to be most carefully made, and the duration of the march most accurately gauged—as by arriving too soon before the enemy's position the movement might have been prematurely disclosed, the defenders put on their guard, and the whole fire of the enemy drawn on the attacking force before there was yet light enough to see where they were to attack. On the other hand, by arriving too late, the force would be exposed in its advance to a sweeping fire under the most disadvantageous conditions before it could close with the defenders. But in this instance there was this one great advantage, that the advance lay over an open country. The whole force could therefore move in one body, instead of having to be split up on several roads; so that the usual danger of failing to concentrate for attack at the appointed time was here minimized to the utmost. Moreover, this advantage was in this instance further utilized by adopting for the march the formation in which it was meant sub-

sequently to attack. The movement was conducted as follows: The First and Second Divisions with the artillery moved direct against the position of Tel-el-Kebir. The Indian Division moved at a little distance on the left rear along the canal. The cavalry division moved to the right, making a wide sweep round the enemy's left. The First and Second Divisions had each one brigade in front, followed by the second brigade in support. The interval (distance) between the brigades from front to rear was one thousand yards. The leading brigades were formed in two lines of half-battalions—each battalion having four companies in front line and four companies in second line, with fifty yards distance between the lines. The artillery moved between the two brigades in support. The direction of the advance was regulated by a naval officer working with a compass. Between the leading brigades and the brigades in support was a string of connecting files to insure that the rear brigades did not diverge from the true direction. These connecting files were at intervals of about fifteen yards, and were under the immediate superintendence of a staff officer.

“No buglers were allowed with the force, and no rifle was allowed to be loaded.

“As the first glimmering of day appeared, the leading brigades arrived at the position and stormed it. In twenty minutes more the battle was over.”

Logistics * signifies in its broadest interpretation all the operations of moving and supplying armies such as would be included in marches, camps, transportation of troops and supplies, orders, and, in fact, most of the field duties appertaining to the administrative departments. Some writers assign to it nearly all the duties of the staff, but many recent French writers narrow the domain of logistics to lodging, supplying and transportation of troops, and increase that of tactics. This would seem to be reasonable when the details of a single staff department are considered.

We will merely touch on transportation, supply, and camps in what follows:

In addition to moving troops by marches they may be moved by railroads and by boats. "Large bodies move slowly"; it is the same with large armies. One day's field rations for 10,000 men weighs nearly 30,000 pounds, and would require, if hauled, 15 six-mule teams for transportation. It would take about 40 wagons to carry 100 rounds of extra ammunition per man. In addition, there must be wagons for baggage, artillery ammunition, tools, pontoon train, field hospitals, and ambulances.

Railroads and water transportation have simplified the matter of carrying supplies enormously. As an illustration, showing how this object was accom-

* Pettit's Elements of Military Science, p. 29.

plished during the civil war, we will quote from General Sherman's Memoirs:

"The value of railroads is also fully recognized in war quite as much as, if not more so than, in times of peace. The Atlanta campaign would simply have been impossible without the use of railroads from Louisville to Nashville, 185 miles; from Nashville to Chattanooga, 151 miles; and from Chattanooga to Atlanta, 137 miles. Every mile of this single-track road was so delicate that one man could in a minute have broken or removed a rail, but our trains usually carried along tools and means to repair such a break. . . . Our trains from Nashville forward were operated under military rules, and ran about ten miles an hour in gangs of four trains each, of ten cars each. Four such groups of trains daily made 160 cars of 10 tons each, which exceeded the absolute necessity of the army. . . . That single stem of railroad, 473 miles long, supplied an army of 100,000 men and 35,000 animals for 196 days. To have delivered regularly that amount of food and forage by ordinary wagons would have required 36,800 wagons of six mules each, allowing each wagon to have hauled two tons twenty miles each day."

A regiment of infantry would require about seven hours to march twenty miles; it could be put on a train and carried that distance in one hour. An army corps can march about fifteen miles in seven hours, but it could not be carried that distance by or-

dinary railroads in anything like that time with its animals and all impedimenta. This shows that a ratio exists between numbers and distance, and Soady states that, "as a result of the experience of the Franco-German War, it was found that troops could not move faster by railroad than by marching when the number of men exceeded 435 per mile of distance to be travelled, even upon double-track continental roads."

In figuring the number of cars required for transportation of troops, the following is given for a basis for estimates: One passenger car will seat 60 men comfortably; one sleeper will berth 28 men comfortably, 52 crowded; one box car contains about 50 cubic yards and will carry from 10 to 20 tons of freight; one flat car will carry the same, or two army wagons loaded, with other stores between, or two field guns with their caissons and limbers. A horse car carries from 15 to 17 horses. One infantry regiment of 1,000 men would require from 16 to 18 passenger cars, 2 box cars for baggage and rations, and if it carried its wagon train, it would need from 10 to 12 cars for horses and wagons, making in all about 30 cars. Large platform facilities are necessary for loading and unloading, otherwise the delay thus occasioned is very great.

"Water transportation is the best when there is but little chance of being molested *en route*, and the men certainly are in better condition when they land.

All the stores, baggage, etc., are put aboard first and the troops last. McClellan's army of 122,000 men and 74,592 animals, 44 batteries, with wagons, pontoon train, etc., was carried from Washington to Fort Monroe, nearly 200 miles, in 16 days" (Mercur).

Trains and boats should be specially prepared for transportation, and all sanitary conditions looked after very closely. The details of the movements of troops either by railroad or boat are usually in the hands of the quartermaster's department.

When troops are embarked for sea they are carried on transports or troop ships specially fitted for this service, and convoyed by men-of-war when there is any likelihood or danger of attack. The embarkation is as follows:

1. Baggage and vehicles.
2. Horses and mules.
3. Troops.

The troops and animals go aboard just before sailing. If the voyage is to be long, the arms should be placed in boxes; ammunition, harness, saddles, etc., packed in barrels. Horses should be shod on all four feet and the ship cleaned and disinfected before embarkation.

Wagon trains are a necessary incumbrance to every army. They must haul rations, ammunition, forage, clothing, baggage, etc. There must be as well, trains for field hospitals, bridge and pontoon

trains, and field bakeries. During our last war, when companies became reduced and the men had learned to economize in clothing and provisions, one wagon answered for two companies.

To the quartermaster falls the lot of arranging, directing, and superintending the trains. He inspects horses and wagons daily to see that they are in the best possible condition; that horses are shod; that harness is in order; and that wagons are greased and spare parts provided, etc. When troops and wagon trains come in contact, the former have the right of way; but troops should, if possible, march alongside, and leave the road to the trains.

When troops are moved by train they are drawn up in line facing the cars. The adjutant divides the line into sections according to the capacity of the several cars, and each section is placed opposite its car. At the signal or command they file in and take seats in regular order—eight men occupying ten seats, the extra two being used for knapsacks or packs. The men should retain their rifles and ammunition beside them. No man should be allowed to leave a car without proper authority from his officer or the non-commissioned officer in charge.

Details for loading horses, wagons, baggage, etc., are made before the men are put aboard.

When disembarking, the men form ranks quickly at the order or signal. The battalions form line, and if required, stack arms and unsling packs or knap-

sacks. The details for unloading report to the quartermaster. If the enemy is near, then outposts are established, patrols sent out, and a good defensive position selected and occupied until favorable reports are received from the patrols.

At the end of a day's march, the wagon trains are parked usually in lines facing the road. If there is any danger of attack, then they are parked either in squares or circles with the animals inside.

Pack mules are used extensively in mountainous countries; they carry from 150 to 200 pounds and can travel over the worst roads. Ten of these animals can carry ten days' rations for fifty men, a couple of boxes of ammunition, and the necessary cooking utensils.*

The question of supplies for small commands is not a difficult one, as the trains carrying the rations, forage, ammunition, tentage, etc., are usually marched just in the rear, except when near the enemy, when they would be placed at a greater distance behind. They would, in the former case, reach camp only a short time after the troops.

Paragraphs 660 *et seq.*, Infantry Drill Regulations, 1891, give some general information regarding encampments, etc. In the absence of tents, shelter

* But as two pack mules will ordinarily draw about a thousand pounds in a light cart, according to the nature of the roads, it is plain that the number provided, looked after, and fed will be very considerable in proportion to the weight carried.

should be constructed and any available buildings in the vicinity used for the sick and wounded. In choosing a site for a bivouac, military considerations prevail. The position selected should offer opportunities for obtaining water, wood, forage, and straw, and be governed by sanitary conditions. Swampy ground, marshy land, freshly plowed fields, etc., should be avoided, while grass lands, sandy or gravelly soil, fulfill the necessary health requirements.

The English regulations show how a bivouac may be formed around a fire by cutting a circular trench and building up the earth taken therefrom into a bank two or three feet high on the inner side, with bushes as an extra shelter. The men lie around with their feet toward the fire.

In foreign armies, a battalion of four strong companies has allowed to it, as a rule, four fires for each company and one for its officers, one for non-commissioned staff officers, one for sutlers, and one for the commanding officer and staff—twenty-three fires in all. Kitchens are established in the rear of the fires. With smaller companies half this number of fires would probably be sufficient. These fires should be concealed from the enemy if possible, and this point should be considered when selecting the ground.

Latrines or sinks must be dug for the convenience and health of the troops. When bivouacking only for a night, one or two trenches fifteen feet long

and eighteen inches wide would answer for a battalion, others being made for officers. They should be in the rear and away from the water supply. They should be dug deeper and sheltered by brushwood or tenting if the stay is to be prolonged.

As soon as troops are halted in their bivouac position, outposts are established and patrols sent out to search for information of the enemy. If the position is commanded by any heights, these should be occupied by a force sufficiently large to make a successful defense.

In the English army, alarm posts—places where different units are to form or collect—are designated clearly beforehand.

“Cantonments” are quarters allotted to troops in houses and other buildings during field operations. No provision is made, however, in our regulations for thus quartering troops either on friend or foe.

PART II.

CHAPTER X.

POINTS IN INFANTRY FIRE TACTICS.*

THE practical maxim of this branch of tactics is to be found in the following passage taken from Major Mayne's celebrated work on Fire Tactics: "The nation which has best educated its troops to the true character of modern fighting, by teaching them to do in peace what they will have to do in war and by subordinating to that end the whole training of the soldier, will have placed itself in a position . . . a long way on the road to gain success."

The bayonet has been superseded by the bullet. But how? By the perfecting of individual fire in its applicability to short ranges and by collective fire for long ranges with a correct appreciation of distances.†

* Gathered principally from Infantry Fire Tactics. Major C. B. Mayne, R. E.

† An attempt to solve the difficulty of range-finding has been made by M. Clermont-Huet, optical instrument manufac-

In a lecture before the Royal United Service Institution the following advantages were pointed out by Captain Watkin, R. A., as being obtainable by the use of some efficient (and simple) system of range-finding:

1. A demoralizing effect on the enemy by a fire efficient from its commencement.
2. A steadying effect on one's own men.
3. A check on reckless expenditure of ammunition.
4. A consequent saving in transport.

The following remarks were applied to artillery fire, but they refer with equal force to infantry fire: "The unsatisfactory practice at unknown ranges while maneuvering rapidly shows that a large quantity of ammunition may be wasted without the fact being observable from the battery, and points to the necessity of some means being provided for ascertaining in the field, and, within reasonable limits, the distance of the object to be fired at." So that "without knowing the range within sufficient approximate limits, a large quantity of valuable ammunition, and all the more valuable from the difficulty of transporting it to the field of battle, is absolutely wasted."

turer to the French Minister of War, who has invented a glass which is said to be both accurate and convenient. A full description of this instrument is to be found in the *Journal of the Military Service Institution* of September, 1897, translated by Captain Fonnance, U. S. A., from *La Revue Technique*.

The bayonet has its place by reason of its moral and material effect as a weapon for troops on sentry duty at night, but under modern conditions the authorities agree that even the final disorganization of the enemy will be effected in the future rather by fire than by cold steel.

The English Musketry Regulations point out that "the rifle is placed in the soldier's hand for the destruction of the enemy; his own safety depends upon his efficient use of it; it can not therefore be too strongly inculcated that every man who has no defect in his eyesight may be made a good shot; and that no degree of perfection he may have attained in the other parts of his drill can, upon service, remedy any want of proficiency in this; in fact, all his other instruction in marching and maneuvering can do no more than place him in the best possible situation for using his rifle with effect."

So far as the soldier in training is concerned, the essential principle is that there should be as great care in the expenditure of ammunition on practice field days as if the men were under actual fire. The value of each cartridge should be taught exactly as if the bringing up of further supply was liable to delay or failure. In addition to this, rapid firing in itself tends to undisciplined and inefficient firing. Not only is there a great expenditure of ammunition, but it is an expenditure without results, as the aiming is almost sure to be wild or defective.

Nowadays each individual soldier should be instructed in the spirit of modern fighting, knowing thoroughly what is required of him, and should be competent to use his rifle to the very best advantage.

As a matter of fact, few men are individually good shots, especially when laboring under excitement, so that the question "How is firing to be carried on successfully if individual shooting is of no avail?" has to be answered by experience. The modern solution is: "Controlled, collective, aimed fire of masses for all but the shortest ranges, at which unaimed, individual fire alone is possible from the impossibility of controlling the excited mass of men; and as it is only at these shortest ranges that such individual fire has any efficiency in the field, its use at these distances is allowable."

The authorities agree that since 1877 the German example has been instrumental in transforming the method of infantry fire. Using the experience of the Franco-Prussian War, the Germans substituted the regulated, sudden, and intermittent fire of masses for the old continuous and interminable fire. While still attaching importance to the use of good marksmen even in collective firing, they devoted their chief attention to the efficiency of the average man when kept in control by his officers.

In order to control the fire, the men must be

under the best discipline and fire discipline; to secure the highest effectiveness the officers must be able to judge "within twelve or thirteen yards in every one hundred yards of the distance."

"Individual firing ought only to be employed, as a rule, at the nearest distances to the enemy, when it becomes impossible for a leader to exercise any control over the fire."

The following are the received definitions of infantry fire as regards its horizontal direction or "on plan":

1. Frontal, when it is so delivered as to strike perpendicularly the front of the object fired at.
2. Oblique, or cross, when the object is struck in front but not perpendicularly.
3. Enfilade, when the direction of the fire is along the length of the object or in flank.
4. Reverse, when the fire strikes in the rear of the object.

As regards its vertical direction or trajectory, it is said to be—

1. Horizontal, when the line of sight is horizontal.
2. Inclined, when the line of sight is inclined to the horizontal.
3. Direct, when the fire is directed on a seen object.
4. Grazing, when the fire passes for some distance closer to the ground than the height of the

object fired at.* The last is the opposite of the two following kinds of fire, in which the drop is more or less perpendicular:

5. Plunging, searching, curved, or dropping, when the fire is directed against an unseen object immediately behind a seen object or cover, such as troops close behind an earthwork.

6. Indirect, when the fire is directed against an unseen object some distance in the rear of a seen obstacle which covers it, such as troops in a valley some distance behind a hill.

“It is easily seen from the above that any kind of fire as regards horizontal direction can be combined with any kind of fire as regards trajectory. Thus a frontal fire may be horizontal, inclined, direct, plunging, or indirect, and so on. Whether the fire be horizontal or inclined, the trajectory for any given range remains practically in a constant position with reference to the line of sight; so that, having drawn the trajectory of a given range for a horizontal line of sight, we have only to move the whole figure up or down to obtain the trajectory for any

* Collective infantry fire is either plunging—i. e., dropping—or grazing, though it is impossible to say at what range the former begins. The longer the range the more dropping is the fire, and the shorter the range the more it grazes. The efficacy of a concentrated infantry fire principally depends on its grazing power over the whole depth of the dangerous zone. (Mayne's *Infantry-Fire Tactics*, p. 193.)

given amount of inclined fire. This statement is not, of course, mathematically correct, but it is sufficiently so for all practical purposes as regards the trajectories of rifle bullets when the fire is not much inclined."

The point at which a bullet first strikes the heads of either cavalry or infantry, in the trajectory, is called the "first catch." The dangerous zone is that space within which the power of the rifle is effective, or the dangerous part of the trajectory. It begins at the "first catch" and theoretically ends at the point where the bullet, if not interfered with, will first strike or graze; but as it will frequently bound, glance, or ricochet, it will still be able to do considerable damage. The greater the zone of danger, the better or more efficient will be the fire.

For individual fire the danger zone decreases as the range increases, while the efficacy of fire will increase as the range decreases.

The advantages of a flat trajectory are generally known to riflemen. They may be summarized under three heads:

1. Greater accuracy.
 2. Harder hitting.
 3. Greater efficiency in covering the ground.
1. "Greater accuracy, since the direction of the bullet on striking is less oblique to the target with the flatter trajectory, and consequently small errors

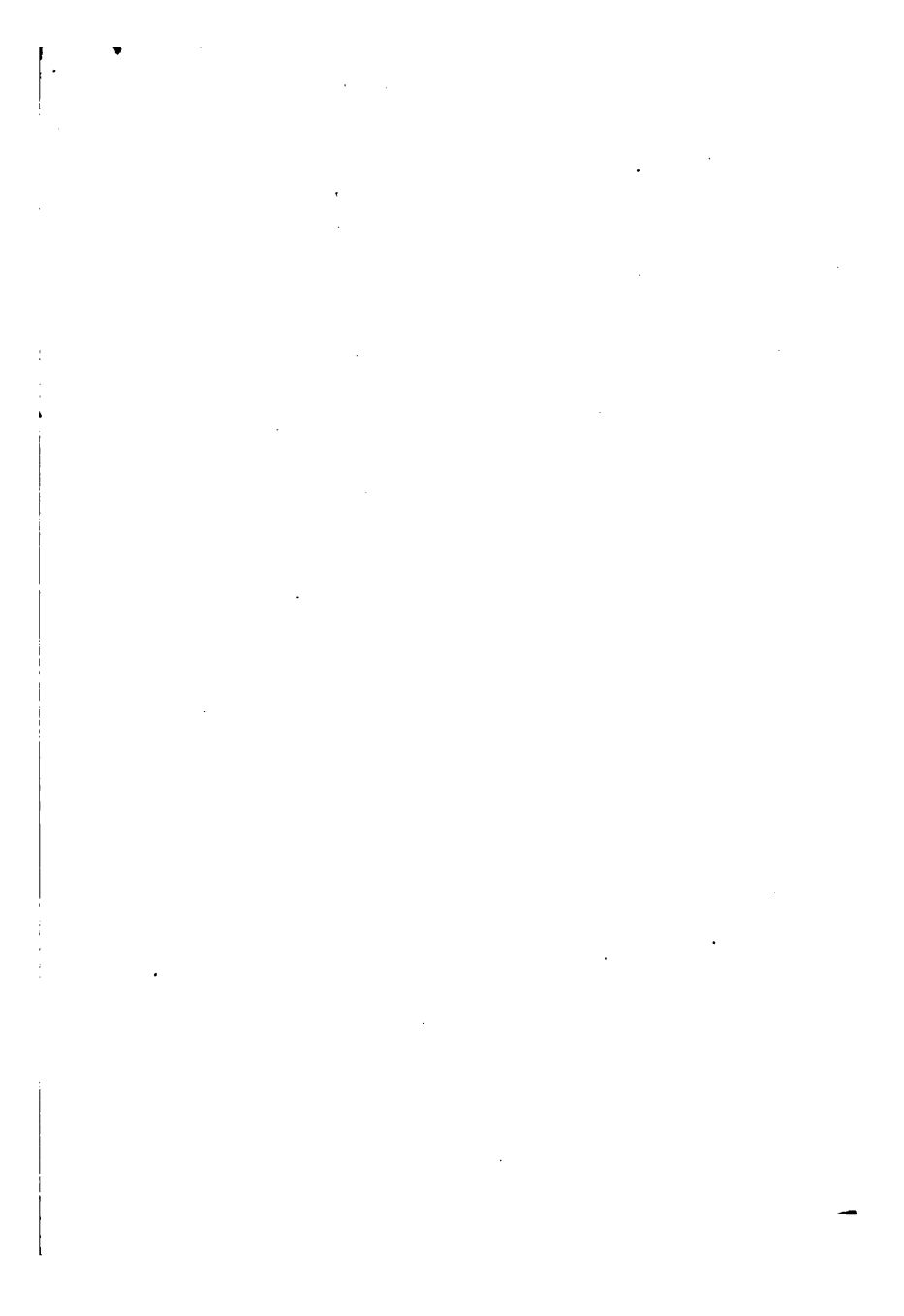
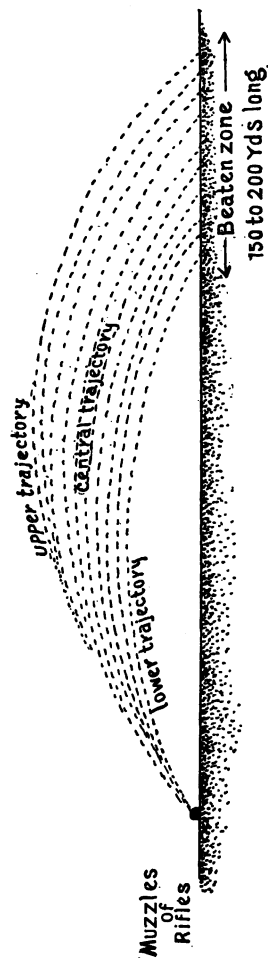


PLATE X.

Cone of fire.



in aiming or in judging distances are of lesser importance.

2. "Harder hitting, because the velocity being higher, if the bullets are of the same weight and fired out of similar rifles the blow must be harder and the penetration greater. (Penetration depends on striking force and rotation as well as on form and material of both bullet and object.)

3. "Greater efficiency in covering ground, because for the same range the bullet does not rise so high in the air."

Therefore a military rifle should possess the flattest trajectory possible for all ranges with the greatest accuracy.

In any case, however, rifles depend upon the skill of the men using them to be of value. Captain Murray * shows in a simple way how the theory of the cone of fire and beaten zone can be understood easily by every soldier.

The cone of fire of a volley resembles a jet of water from the nozzle of a hose (Plate X). The larger the volley, or number of rifles firing, the greater the liability of spreading through individual errors. The beaten zone or area upon which the cone of fire falls is, roughly speaking, 150 to 200 yards in length, and its breadth, roughly, equal to twice the number of yards that there are hundreds in the range.

* Fire Discipline.

For instance, at 600 yards, the beaten zone equals 200 yards in depth and 12 yards in breadth. This jet of fire is turned, in collective firing, upon one target and then upon another, and when the range increases or decreases, sights must be adjusted properly and promptly so as to secure the full effect of a collective cone of fire.

Sights properly set will give every bullet a value, as, if the range is correctly given by the officer, the central trajectories (good shots) will hit the enemy. If he has undervalued the distance, the upper trajectories (men who fired too high) will hit, while if he has overestimated, then the lower trajectories (men who aimed too low) will hit.

“In battle, for moral reasons, it is better to expend the required ammunition as rapidly as possible by increasing the number of men firing. Sudden losses intimidate the enemy more than if the losses were more gradual; to expend the necessary amount of ammunition by making a few men fire for a long time takes all the offensive spirit out of them.”

As for ricochets, it has been shown by experiments that they are very effective. The power of penetration of the Martini-Henry bullets at ranges from twenty-five hundred to twenty-eight hundred yards has been proved to be equal to passing through a three-quarter-inch spruce board; while one fifth of the hits during the experiments of the Siege Operations Committee in England were made by ricochets.

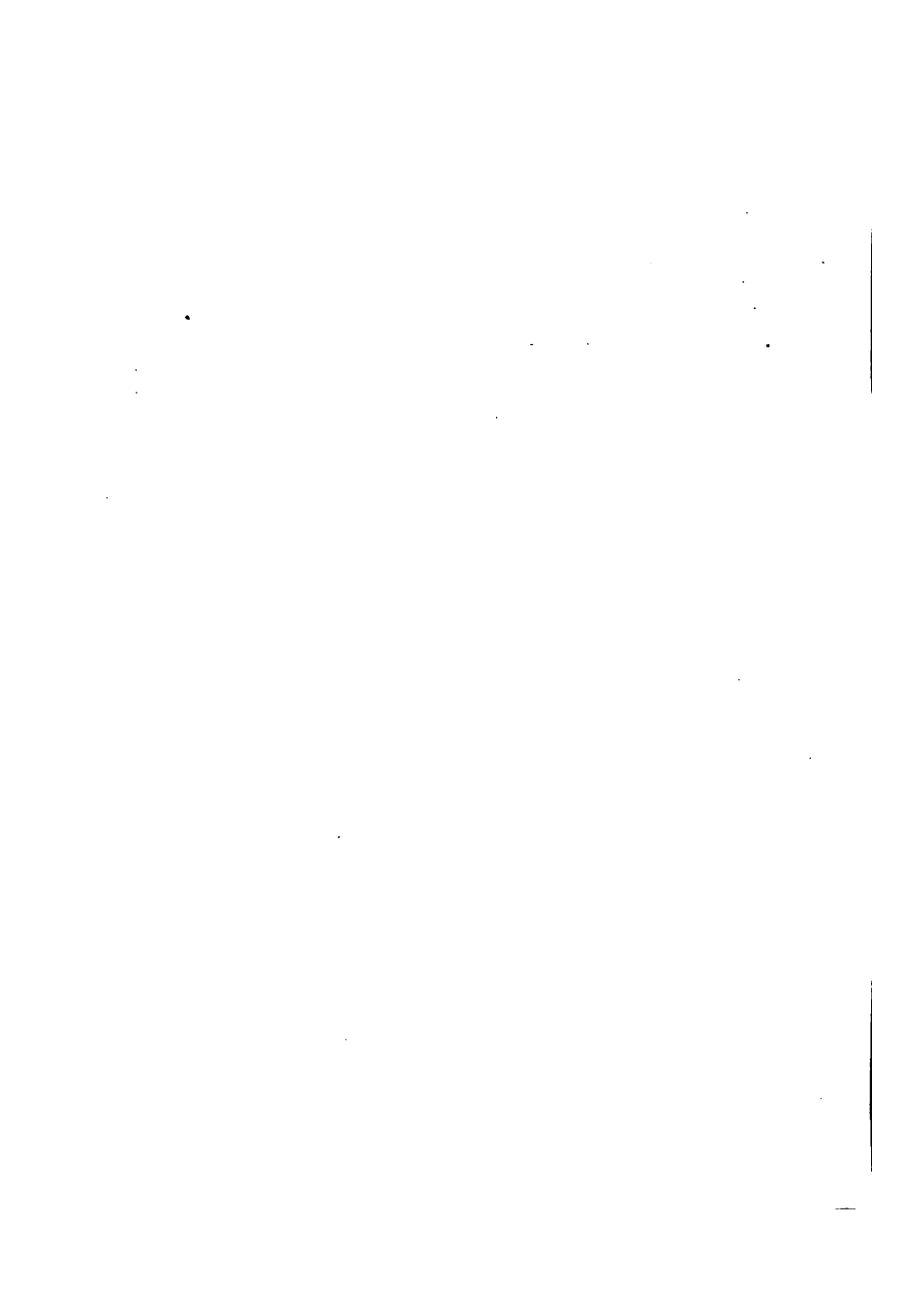


PLATE XI.

Fig.1.

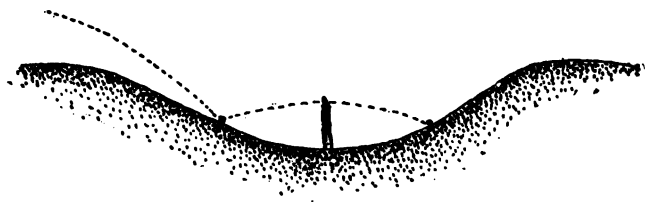


Fig.2.

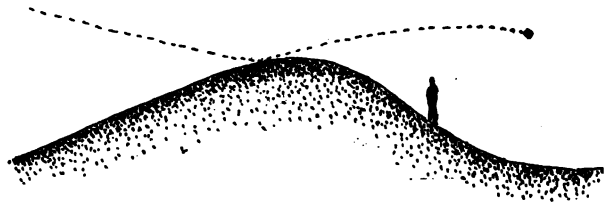
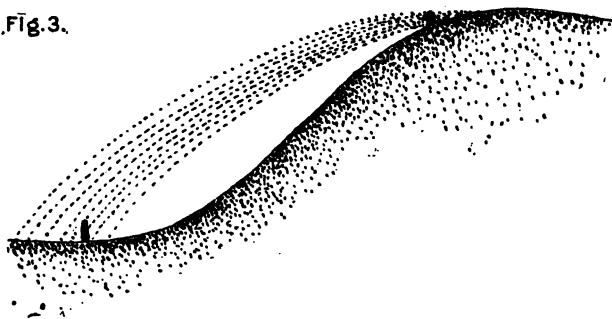


Fig.3.



Illustrations of fire incidence.

The slope and nature of ground affect ricochets very materially, as their length is increased by falling ground and decreased by rising ground, while soft or cut-up ground is apt to stop them. Any hard soil is conducive to ricochetting, and stony ground not only varies the ricochets, but cause splinters of stone to fly.

Where bullets fall on concave ground they will be likely to ricochet on the object (Plate XI, Fig. 1).

When the ground is convex they are liable to pass over it. A rounded crest, therefore, gives good protection against ricochets (Plate XI, Fig. 2).

In firing down hill or up hill there may be no ricochets (Figs. 3 and 4).

Firing from a low position to one higher, as from a valley to an enemy on a crest, the dangerous zone is increased, and a greater result produced under favorable conditions. In Figs. 5 and 6 are to be seen two zones of ground swept by fire, one (Fig. 6) at the ridge and the other (Fig. 5) beyond it. The latter might reach the enemy's supports or reserves under certain circumstances, "especially if the ground on the reverse slope to the origin of fire is more or less parallel to the trajectory or remains within five and a half feet of it."

But in considering the defender's fire from the ridge in Fig. 3, the dangerous zone will be lessened by the plunging character of the fire, which in addition will also diminish ricochetting and its effects,

and will, besides, only present one dangerous zone of fire. Theoretically, therefore, the position of the defender on the ridge (Fig. 5) of the hill will be inferior to that of the assailant.

Should the line of defense be from five hundred to eight hundred yards in rear of the crest, then the situation is reversed (see Plate XII, Fig. 6), for, when the defenders fire on the enemy's line, they may not only sweep the crest, but the slopes behind, and if they have a suitable inclination they might hit any supporting troops in rear.*

Plate XIII, Fig. 7, shows how "a near approach to the crest tends to create on the reverse slopes of a plateau a protected zone, which increases in depth and height as the range decreases, allowing masses of troops to be concentrated near the crest, or the firing line to be retired without danger."

"Thus, as the enemy approaches the crest, the defiladed zone in the rear of it gets greater and greater and the bullets passing over the crest fall farther and farther in rear of the position, allowing re-enforcements to approach in safety just at a time when it is required for them to do so." This is seen in Fig. 7,

* Major Mayne considers a strong occupation of the crest line or of a line in front of this crest line as the general rule to be followed, and the strong occupation of a line in rear of the crest as being only suited to special cases. He presents both sides of the question fully, which the reader can study by reference to his work, *Infantry Fire Tactics*, p. 208 *et seq.*

PLATE XII.

Fig. 4.

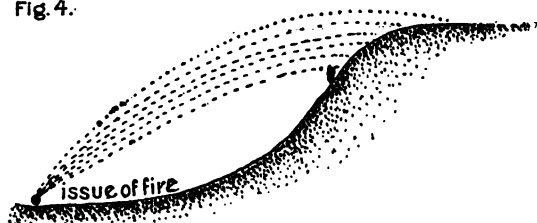


Fig. 5.

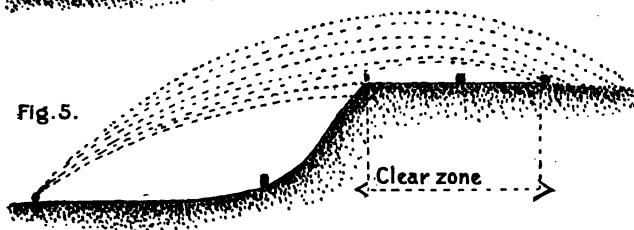
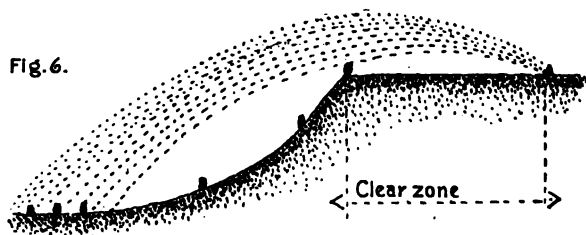


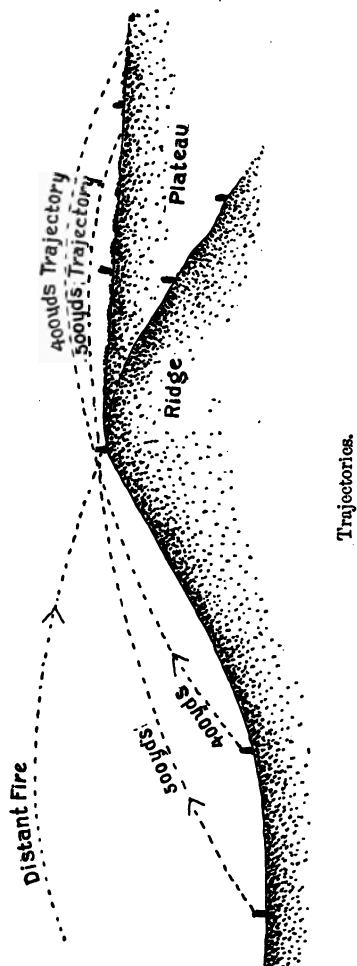
Fig. 6.



Zones of fire.

PLATE XIII.

Fig. 7.



only it is to be remarked that the cones of fire are shown by their mean trajectories only.

Experiments made in England in firing volleys at night without the use of sights, both on bright and dark nights, rifles rested and used off shoulder, bayonets fixed and unfixed, gave excellent results up to six hundred yards, but beyond that range no assured result could be obtained. As stated elsewhere, the deadliness of modern firearms has caused many tacticians to believe that in future night attacks will have to be made use of more frequently than ever before, so as to allow of the assailants getting within effective and close ranges under cover of darkness. In these night attacks close-order formations will be usually necessary in order to preserve perfect control over the troops. The entire success of a night attack requires secrecy, surprise and rapidity of movement, while the defense must rely for safety upon early information from its outposts, and be prepared to have each man in his position to prevent the enemy from closing in.

In selecting ground for defense at night, the slopes upon which the rifles are to rest should be parallel to and nearly coincident with the ground outside that is to be fired over, so as not to require aiming.* When firing at night it is best to close the

* At Tel-el-Kebir the superior slopes of the Egyptian intrenchments were horizontal, which fact probably accounted for

eyes at the instant of firing. This will obviate the sudden glare of the flash, which dazzles the eyes so as to prevent seeing again for a minute or so.

The German, French, and Italian, as well as the American regulations all give instructions with reference to the point that should be aimed at in action—viz., the feet of the enemy, or lower line of smoke. The latter is likely to be out of the question in future warfare, by reason of the fact that smokeless powder may be exclusively used. As yet, the effects of smokeless power on European warfare have not been defined. Peace maneuvers have, however, given rise to speculation on this subject, and the discussions seem to have made it clear that, owing to the removal of the smoke clouds that have always hung over the firing line, better aiming and more efficient shooting will result. Besides, when under cover, the concealment of the firing line is assured, which was not the case with the old powder, which not only betrayed the position, but offered a target to the enemy. Both these points have an effect on the attack and defense.

In addition, commanding officers in future would have their men always in view and under fuller control, and so regulate their movements and fire better. "Fire discipline is the question of the day." Every new improvement in firearms makes the strict-

the small loss to the English forces, as the bullets passed over their heads.

est fire discipline more and more urgent and necessary; it affects shooting and expenditure of ammunition. The introduction of magazine rifles now makes it all the more imperative.

In making an attack, the chief difficulty will be to locate the enemy exactly, for while the *direction* of fire may be discovered, the *position* will not be revealed by smoke, and it is considered doubtful by some writers if cavalry can approach near enough to gather this information. And yet, until the position is known, no order of attack can be formed.

“Smokeless powder may compel the formation for attack to become even shallower than at present. With the old powder the smoke of the firing line concealed to a great extent what was going on behind it. The movements of the supports and reserves were generally hidden from the enemy. This will no longer be the case. All troops moving in the open will be exposed to the view, and therefore aimed fire, of the enemy. Formations will probably have to become shallower accordingly. These shallower formations will have to be adopted at a greater distance from the enemy. These are additional reasons for making sure of the true direction of advance before troops are extended in formations so unsuitable for maneuvering of any kind.” *

All this, as regards aiming, concealment, and

* Clery, p. 415.

command, applies to the defense as well. But the defense holding a position may require a change in the disposition of troops, as the force in the open behind the firing line, would be exposed to fire, and provision, therefore, would be made to supply this fire—in an attack.

The front line of the defense will be engaged with the front line of the attack as formerly, and defeating this line will be the first requirement in defeating the attack. Long-range and volley firing might be successfully employed on the enemy's supports to the firing line as soon as they appear in the open.

When other means are lacking, distances, for the purpose of sighting, can be arrived at approximately by sound.

Sound travels 1,113 feet, or 371 yards, in a second, with the temperature at 50° F. This rate increases or decreases at the rate of about 1.0966 foot for each degree F. above or below the one given above. Thus when the smoke or flash of a rifle or gun is seen, if the time can be estimated in seconds (by the aid of a stop- or split-second watch) the distance can be calculated fairly well. But judging distances from the fire of a single rifle is difficult beyond 1,300 yards, and impossible beyond 1,600.

The supplying and replenishing of ammunition on the battlefield is a much-discussed question. Various methods have been suggested, and several have been adopted by different countries as the best pos-

sible solution of the difficulty. Modern weapons have made the consumption of ammunition something enormous, so that, to avoid loading the foot-soldier down with a crushing weight of ammunition, some other method of supplying him must be put into practice in order to give him his full value as a unit in the firing line. The certain and sufficient replenishment of a firing line is a condition for its very existence.

“In some experiments made in Germany in 1876, during a field day in which the heaviest fire was ordered to be kept up, no man fired more than forty rounds, but only short-range firing was used. But, on the other hand, at some experiments made in Cassel, in 1878, in the Grand Maneuvers of the Eleventh German Army Corps, where the new principles of infantry-fire tactics, including long-range firing, were carried out, an average of one hundred or one hundred and twenty rounds per man was fired away in exercises which only lasted three or four hours, and during which the fire was conducted with the greatest coolness and economy; and if we allow half more for the increase caused by the consumption and loss due to the excitement of the fight, this will give upward of one hundred and eighty rounds per man.”

When troops are stationary and acting on the defensive, it is comparatively easy to supply the firing line before the near approach of the enemy, and the men can prepare receptacles for their extra ammuni-

tion. Acting offensively, while the enemy is still distant and long-range fire is employed and the enemy's fire is not very effective, the replenishing of ammunition is not so difficult; but as the enemy is approached, the difficulty becomes so great that the German regulations say that the full supply of ammunition must be issued to the men before sending them forward, and that under fire the cartridges of the killed and wounded are to be collected and used. They also point out that, owing to the lack of facility for bringing up ammunition in an attack, officers and men should see the necessity of not wasting a shot, and make such use of their supply as not to have exhausted it before having made an assault on the position; but defenders, placed in shelter trenches, behind walls, or other natural or artificial obstacles, know that their means of replenishing ammunition is easy and even prepared. The conclusion is "that in an action it is less advisable to make use of long-range fire on the offensive than on the defensive." Some Russian writers dispute this, and hold that to create a superiority an offensive long-range fire is necessary. It is a difficult problem at best, but in any case it will in all likelihood be a matter of ammunition sufficient to carry out the work expected of the rifle.

Ammunition is carried partly by the soldier and partly by wagons, carts, or pack animals, as the case may be. Where the enemy's fire is bad, as was that

of the Russians in 1877-'78, the pack animals can be brought up to the firing line, as the Turks succeeded in doing.

The following information is taken from Major Mayne's work,* but he points out that the figures may not be exact, owing to modifications made necessary by changes, the result of constant experiments.

In the German army the ammunition is carried partly—

1. By the soldier.
2. By the company baggage wagons.
3. By company ammunition wagons.
4. By ammunition "echelons."

Each soldier carries 100 rounds on him; non-commissioned officers only carry 30 rounds each. Each company of 250 men has a baggage wagon, in which 2,880 rounds are carried in three boxes, giving 11.5 rounds per man; but as these wagons do not accompany the troops on the battlefield, this supply can not be counted on as available for the troops in action. It is meant to fill up the pouches during a halt, when no other supply is available.

With each battalion are four company ammunition wagons drawn by four horses, carrying 38,400 rounds in all, in forty boxes, containing 960 cartridges each, or 38.4 rounds per man. Each wagon has six canvas ammunition bags, each capable of hold-

* See pp. 287 *et seq.* for fuller details.

ing about 500 rounds. Two or three men per company are told off to accompany each wagon to bring the ammunition in it to the respective companies. The company ammunition wagons are painted gray, to distinguish them from the artillery ammunition wagons, which are painted blue and are of the same pattern. This difference of color between wagons for the two arms, which is only a matter of detail, greatly facilitates the supply, and is considered very important. The ammunition wagons are driven by men belonging to the battalion to which they are attached. Each battalion has, besides, two non-commissioned officers and two men trained in the conducting and maintenance of the ammunition wagons. These non-commissioned officers and men are taught their duties in peace by the nearest field artillery batteries, with whom they remain four weeks, and learn to equip, load, and conduct the ammunition wagons. They are taught especially all that treats of the replacing of ammunition during and after a fight. Each non-commissioned officer is also taught what is absolutely necessary for him to know, to enable him to carry out the duties of a convoy commander. The drivers and orderlies are taught for five months every year, in the nearest cavalry regiments and field artillery batteries, to mount, groom, take care of, bridle and saddle horses. Some ideas of veterinary medicine, and what they should do, both in cantonments and on the march, are given them;

and they are also instructed in driving both from the box and as a postilion.

The foregoing simply relates to the distribution of ammunition for companies and battalions; the following touches upon methods of replenishing the supply of ammunition:

The cartridges being on the battlefield, more or less near the men, according to the ground, how are they to become available to the men in the firing line? How are they to be transported from the echelons in rear to the echelons in front? This is accomplished by the Germans as follows:

The company ammunition wagons are to place themselves from the beginning of the action close to the troops which they have to supply, and in as sheltered a place as possible. A non-commissioned officer always remains with each wagon, and shows its situation at once by means of a white flag with a black square in the centre, placed to one side and at a distance from the wagon, on a spot where it can be easily seen. At night this flag is replaced by a green lantern. This flag or lantern simply shows a depot of supply, and it is laid down as a principle that any troops engaged are to be supplied from any wagon whatever. If necessary, connection between the battalion and its ammunition wagons may be assured by mounted orderlies.

As soon as the battalion has taken up its position and the action begins, two or three men per company

and a non-commissioned officer, told off beforehand, who have been previously exercised in this duty, proceed to the wagons and take off their knapsacks and everything that will hinder their movements, as they ought to have no other occupation than that of fulfilling the duty with which they are engaged. The non-commissioned officer who has charge of the men gives to each of them a canvas bag capable of carrying five hundred cartridges (forty-four pounds), which is considered the limit of weight which one man can carry for a considerable distance or over difficult ground. They then return to the engaged companies, distribute the ammunition they carry, return without orders, and continue this coming and going as long as necessary. Latterly, however, the Germans and Austrians have considered that no reliance is to be placed on schemes for supplying attacking troops in this way with fresh ammunition during the final stages of an action—i. e., under 500 yards. Further, they consider that 24 pounds weight—12 packets of 20 rounds, 240 in all—is all that a man can be reasonably expected to carry. Assuming thirty minutes as necessary to go and return from the fighting line to the battalion ammunition wagons, with three men carrying this quantity each, 240 rounds, only 720 cartridges could be supplied in half an hour. This could be expended in less than a minute with deliberate firing.

Therefore, when on the offensive the men ought

to be fully supplied with ammunition before the attack begins, and the carriers should begin their work as soon as the firing commences, so as to prevent any shortage.

When previously selected positions have to be defended, it is laid down by the Germans that small depots of ammunition are to be established along the line. Under fire, the cartridges of the killed and wounded are also to be utilized. As a general rule, the battalion wagons may be expected to be within 880 yards of their battalion in action.

All troops engaged have the right to supply themselves at the wagons nearest to them, whether they belong to their battalion or not.

The battalion adjutant is especially charged with seeing that the service of supply is well carried out. As soon as a wagon is emptied it is sent to the nearest echelon of the ammunition column, and exchanges its empty boxes for full ones. But as this method may cause a delay in the supply, the commander of the first ammunition echelon can, if he thinks fit, and must if he receives the order, send some of his wagons to the point where the ammunition seems to be consumed most quickly, so that an empty ammunition wagon may be replaced rapidly by a full one, while it goes to the first echelon to be re-filled.

The same general methods prevail among the great powers of Europe, and vary only in detail.

Major Mayne, after a comparison of the various systems, sums up as follows:

1. The personal necessities in a soldier's valise [pack or knapsack] should be reduced to a minimum, while the number of cartridges which he carries should be increased to *at least* one hundred rounds, and an extra haversack and ample pockets (in his coat and trousers) should be provided to enable him to do this, and to receive a further supply of fifty or more rounds on going into action.

2. The supplying of ammunition should, as much as possible, precede the attack, because the service can only be exceptionally carried out during a close fight. Every pause in the fight should be fully made use of from the very outset to replenish the supply of the men firing, and the ammunition on the dead and wounded should always be made use of.

3. The load of the foot-soldier should be lightened to the extreme limit possible, but it should be absolutely forbidden to put the valise [pack or knapsack] on the ground previous to an attack, unless the cartridges have been first taken from it. The cartridges in the pouches are to be used last.

4. There should be a universal pattern infantry ammunition cart or wagon for the battalions and divisional ammunition columns, so that they may be interchangeable.

5. If they are of the same nature, the infantry carts or wagons should either be of a different pattern

or shape, or be painted a different color from those of the artillery (or have bands of different bright colors on them) to distinguish them, so as to facilitate the supply.

6. The battalion and divisional ammunition carts or wagons need not have the name of the corps or column painted on them, so that there need not be any necessity to return them to their original owners after an action.

7. Flags and lamps of different colors are required to show the positions of the battalion carts or wagons, and of the infantry and artillery sections of the ammunition columns. These flags should be placed in an action at some distance to one side of the supply centres that they mark.

8.* The cartridges should be solid-drawn and made up in packets of five; they can then be kept in red-colored canvas bags with handles, each containing 250 rounds, or 50 packets of five. Wooden, tin, or zinc-lined boxes may hold four of such bags each, or 1,000 rounds, and two boxes would form a convenient load for pack transport; the covers of the boxes should be very easily opened, without the assistance of instruments.

9. Special red-colored canvas bags should be carried on every battalion wagon or cart, and on a cer-

* It must be kept in mind that these particular details are the deductions of Major Mayne, and are quoted here as illustrating general principles in operation.

tain number of men per company told off to enable the ammunition supply service to be carried out.

Supplementary stretchers, capable of conversion into hand barrows, might also be carried on the wagons or carts for facilitating the distribution of ammunition.

10. In each battalion a non-commissioned officer should be trained for the ammunition service; also some men of each company to act as drivers of the wagons, and others to carry out the duties of carriers, loaders, etc., and thus to create a true battalion fighting train.

11. The supply from the battalion carts or wagons to the combatants to be carried out as much as possible from the rear by men taken from the supports and reserves; officers and buglers may also carry some ammunition for distribution.

12. In special cases, engaged troops may draw on the personal supply of the troops in the rear of them.

13. Constant connection is to be established between the battalions and divisional columns by mounted men trained to this duty.

14. When it is intended to make a determined resistance, small depots of ammunition should be made in rear of the fighting lines.

15. Immediate replenishing of every empty cart or wagon by the divisional and army corps ammunition columns, either by an exchange of ammunition

or, if circumstances require it, by an exchange of wagons or carts; these latter to be brought up to the point required.

16. To enable the supply to be carried out by pack mules on favorable occasions, either special pack animals should be provided for the purpose, or some of the draught horses should be supplied with pack saddles (or riding saddles strong enough to be used for pack purposes); a pair of canvas saddle-bags would then be required for each pack animal.

17. During the marches which precede an imminent action the divisional column ought to hand over one or two wagons, or an equivalent number of carts, to each battalion destined to take part in the preparation of the fight. The commander will base his orders for the distribution of these wagons or carts on the distribution of the duties of preparation and execution among the attacking troops. The advance-guard should also have a certain proportion of extra ammunition carts or wagons attached to them.

18. Any engaged troops should be allowed to draw on the battalion supplies of any battalion for ammunition. A signed requisition should not be asked for, but a statement as to the amount drawn, by whom drawn, and the hour, should be made out by the non-commissioned officer in charge, while the ammunition is being served out, to act as a check both on the amount of ammunition left in the

battalion reserves and upon the corps who have fired away so much.

“Thus we see that the problem of how to bring up supplies of ammunition into the firing line in the attack, and how to distribute them to the men actually engaged, are two of the most difficult and at the same time two of the most important problems to be solved in modern warfare.

“On the defensive, on the other hand, it is not a difficult matter to organize arrangements which shall insure that a stationary line of defense will, within certain limits, never run short of ammunition, because one of the first cares of the defense, when a position is to be energetically held, would be to create ammunition depots close in the rear of each tactical unit by emptying the battalion ammunition carts or wagons and then having them replenished.

“Seeing how difficult it is to supply the firing lines with fresh ammunition in the attack, the troops should be well supplied before commencing the engagement, and it is for this reason that most ammunition-supply regulations now direct that before an action the battalion supply of ammunition, in whole or in part, should be distributed to the men. A greater supply is usually given to the men when on the defensive than in the attack, as they can excavate small receptacles in the trenches for the ammunition, which has not now to be carried.

“Since, therefore, it is so difficult to supply the

assaulting troops of the attack with fresh ammunition in the short and decisive ranges, such troops should reserve their supply to the utmost, and not commence firing until within effective range. Their advance should be prepared, covered, and rendered feasible by a well-sustained artillery fire, and also, when possible, by fire from lines of infantry at long ranges disposed in suitable positions behind cover or hasty intrenchments, and which can then be kept supplied with fresh ammunition as in the defense.

“As it is easier to supply ammunition than men to an army in the field, a large supply of ammunition with a good supply organization may make up for a superiority in numbers with a defective method of supply on the part of the enemy. Hence we see the necessity for perfecting the arrangements for the supply of ammunition in every way possible. It can not be too strongly insisted on, that troops should be frequently practiced in peace time at being supplied with ammunition during an attack, ‘for this service can only be insured by the aid of men perfectly accustomed to duties of this kind.’”

Reference has already been made to collective or controlled fire as the most desirable and effective. Its advantages are: that not a shot is fired without an order; its intensity is governed and regulated by command; it affords time to see that rifles are properly sighted and the proper object aimed at; it affords opportunity for pauses in which orders

or instructions can be passed down the line regarding sights; changes in the method of firing, or when fire is to cease and an advance to begin, etc., and, besides, it has a quieting effect when men are tending to get beyond control; it allows the effect of the shooting to be seen; it can be directed from one object to another rapidly, as from bodies of infantry to charging cavalry; it allows for changes in elevation of sights at any moment; it gives better results at all ranges and permits of successive firing at all points of the enemy's line; it is sudden and therefore offensive in character; it has a terrifying effect when the range is known and volleys are well delivered; it shakes the moral force of the enemy by sudden loss of numbers of men, etc.

Controlled fire can only be executed by units of fire under the leadership and control of a recognized chief, and these units must be in groups or massed bodies. Uncontrolled individual fire is independent fire, and anything independent should be avoided as not being likely to work for the mutual benefit of the whole. Both uncontrolled and controlled fire have their theoretical advantages and disadvantages, but in practice it has been found that the uncontrolled is very pernicious and conducive to waste of ammunition and great loss of moral force.

“Controlled fire preserves us from the thoughtless firing of a soldier who believes he has acquitted his conscience by having fired off all his cartridges

without considering the *nil* results which arise from such a badly organized fire" (Okounef).

"Controlled fire renders a commander capable of carrying forward his men at the exact moment he judges opportune—he holds them better in hand, so to say; it produces on the enemy an overwhelming moral effect because it presents to his mind a feeling of order and consequently of an organized force; it prevents waste of ammunition in futile firing; in a word, when properly applied, it should absolutely prevent the success of an offensive movement on the part of the enemy" (Girard).

"In an uncontrolled fire soldiers do not adjust their sights properly; they fire quickly. The smoke prevents them from seeing before them. The noise of the firing drowns the voices of the leaders and even the sound of bugles, and thus the men continue to uselessly waste their cartridges" (D'Azeinar).

Once uncontrolled firing is allowed, especially with a near and approaching enemy, and with the men excited, it will continue unchecked until every shot is expended, as men will fire under these circumstances to keep their courage up and to enable them to stand the intense mental strain of the moment. By some writers it is considered absolutely harmful and destructive of fire discipline and control to practice this kind of firing at drill. This would seem to be true viewed in the light of modern experience, but there

are times when rapidity of fire overbalances the advantages of controlled fire, as, for example, "in certain situations, as in cases of extreme danger and excitement, it applies itself better to the moral state of the soldier, because it does not require a continued attention to the commands of the leaders, as a controlled fire does." And it is pointed out, too, that at short ranges and in close contact with the enemy any controlled fire will naturally degenerate into a rapid uncontrolled fire, and no attention will be paid to orders; so that no need exists to order independent or uncontrolled fire in such cases, as no prohibition will be likely to prevent it.

The Germans do not favor a slow, continuous, progressive fire. They believe the action of fire should under all circumstances be sudden, unexpected, and powerful, and so present an offensive character. During pauses, when men were getting out of hand, instances occurred in the German army when men under fire were made to go through the manual of arms to steady them.

Up to four hundred yards, or nearer, controlled fire should be employed if possible. The strain will then probably be too great to prevent individual rapid firing; but as the men will be lying down, the rifle will be about a foot from the ground, and, owing to excitement and unaimed fire (the latter sometimes due to sore shoulders), the muzzles will be thrown a little higher, which will probably make the fire (and

ricochets) sweep the four hundred yards in front of them. The critical moment of the fight comes with the rapid individual fire, and it is then that men are seized with the desire or panic to rush forward or to the rear, according as the enemy becomes demoralized (relaxes his fire or retires) or continues to pour in a deadly, unshaken, steady fire.

As the characteristics of modern weapons will compel mixed swarms of skirmishers to be used, order in the din of battle must be preserved somehow so as to make leadership felt. This can only be accomplished by the strictest fire discipline—by a discipline which will compel obedience when the fire units are no longer distinct and compact, and will cause each individual soldier to fight on intelligently and faithfully by himself.

As Murray points out,* one of the prominent features of the War of 1870 was the tremendous amount of straggling and skulking, under cover, in an advance against the breech-loader, and he refers to *A Summer Night Dream*,† with all its revelations, to show what “losses by cover” means. To prevent all this will be the task of fire discipline, and although smoke-

* *Fire Discipline*, pp. 14, 15.

† “This work, of which a translation has recently been published in *The United Service Magazine*, is chiefly valuable for the light which it throws upon many incidents of the 1870 campaign, of which we knew little before. . . . The writer is understood to be Colonel Mekel.” (*Colonel Maurice in War*, p. 140.)

less powder will assist in preventing this in a measure by reason of the fact that the men will be in view and not hidden by the smoke of battle, still the strictest fire discipline will have to be taught and maintained, and these stragglers and skulkers collected and formed into supports. This writer says further, in effect, that fire discipline, as an addition to ordinary discipline, refers to: First, the conditions with which it has to deal—viz., a firing line resolved into its elements; when, under the stress of circumstances and ground, these elements, squads, sections, companies, and battalions are mingled pell-mell; when the fire of the breech-loader on both sides, resounding incessantly, so drowns the sound of the voice that only a few men in the immediate neighborhood can possibly hear any word of command; when leaders are scarce, owing to the disproportionate losses among officers and non-commissioned officers, who, at this period, when the mass is struck and astounded by the terrible fire, must often sacrifice themselves to set a good example;* when, if order is not promptly restored, a wild, roaring, inefficient fire will spring up, some men firing furiously from the rage of battle, others merely “loosing off” into the blue to shoot up their courage by making a noise, and, ammunition failing, the skirmishers falling or driven back. These conditions are to be met and

* See accounts of hill fighting by the English on the Indian frontier—Dargai Heights, etc. (1897).

overcome by fire discipline. As, however, the soldier at such moments can not grasp new ideas, but can only act on impulse or instinct, he must be trained in peace to fight in a fire disciplined pell-mell; as soon as the units are mixed up, to invariably falls into new commands; and in case there are no leaders left near enough for him to hear their voices, each individual soldier must know exactly what he has to do, so that he may do it instinctively in the pell-mell firing line and "fight on by himself."

"Order in the pell-mell firing line ingrained into the soldier's blood—this is fire discipline."

CHAPTER XI.

POINTS IN FIELD FORTIFICATIONS, HASTY INTRENCHMENTS, OBSTACLES, ETC.

FIELD fortifications are means for adding strength to both the weak and the strong. Their use is governed by the same principles that cause the swordsman to study guards as thoroughly as cuts and thrusts. Their preparation and construction are among the duties of engineers, whose department also includes siege works, seacoast defenses, military mines, roads, bridges, conduct of attack and defense of fortresses, and the making of military surveys and maps.

To obtain a clear idea of the principles involved in the use of field fortifications we will quote General Brackenbury:* "Let us first imagine two men armed with some rough means of throwing projectiles, if only a sling and stone, and also capable of close combat, if only with clubs. Let us place ourselves in the position of one of them and think what he will wish to do to protect himself and obtain advantage

* Field Works, Major-General C. B. Brackenbury, R. A., p. 1 *et seq.*

over his enemy. His first instinct will be to conceal himself, while keeping his enemy well in sight, or, if he can not conceal himself, he will hide as much of his body as he can from the enemy's missiles, and he will select, if possible, a place where his enemy must be plainly visible for some distance when advancing. He will also be glad if the enemy can be forced to advance over any objects which may detain him within reach of missiles, and he will wish to have easy means of advance or retreat for himself. Here are four distinct conditions to be obtained if possible. They are such as would occur to any man, and they are the four great principles of field fortifications. All other rules are mere refinement of detail. The main objects which underlie every system of field fortifications are, then, these four:

"1. Cover for the defender from the enemy's fire.

"2. Exposure of the enemy when advancing.

"3. Hampering the enemy's movements by obstacles.

"4. Retaining freedom of movement for the defender by what are called in military phraseology 'communications.'

"If we now go a little into detail with regard to each of the four objects to be attained, the first question will be, 'What sort of cover?' The answer evidently is, 'Any sort of cover which will stop the missiles of the enemy without preventing the defender from using his weapon, whether it be

a sling, or stone thrown by hand, or bow and arrow, or rifle.' The principle is the same for the savage as for the most elaborately drilled and armed soldier of the nineteenth century. A tree, a fallen log, a mound of earth, a heap of stones, a low wall, or, if none of these exists naturally, as much earth as can be scooped out and thrown up to form a mound. This last is, in fact, the modern shelter trench. But no such mound, or heap, or wall must be so high as to shut out all sight of the enemy; otherwise the second principle would be violated, which demands that the enemy should be kept in full view. To the use of early weapons, such as the sling, a high wall or mound would be fatal unless the defender procures something to stand upon which raises him sufficiently to see over his defenses. For more modern weapons—crossbows, muskets, and rifles or field guns—holes can be made which are called loopholes or embrasures.* But the principle remains the same.

“Now let us multiply the number of men, and suppose a small party on both sides. The defenders will now have to meet a new danger. Some of the enemy may show themselves in front, others may steal round and rush in from the flank or rear. To guard against this it becomes necessary to arrange the defenses in some other shape than a straight line, and such forms as the redans, lunettes,† and

* See Flate XIV.

† See Plate XV.

PLATE XIV.

Log Loophole

Fig. 1.

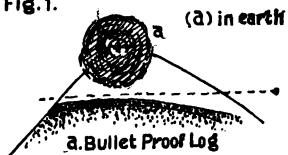


Fig. 2.

Outside

(b) in walls.



Fig. 3.

Inside



Fig. 4.

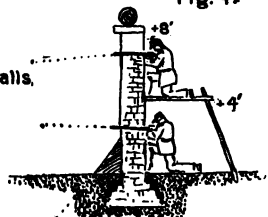


Fig. 5.

(C) Sandbags Fig. 6.

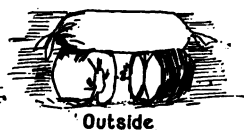
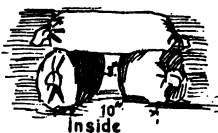


Fig. 7.

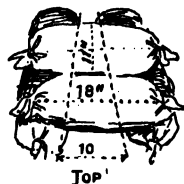
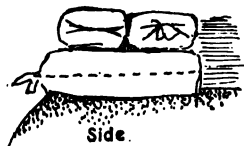
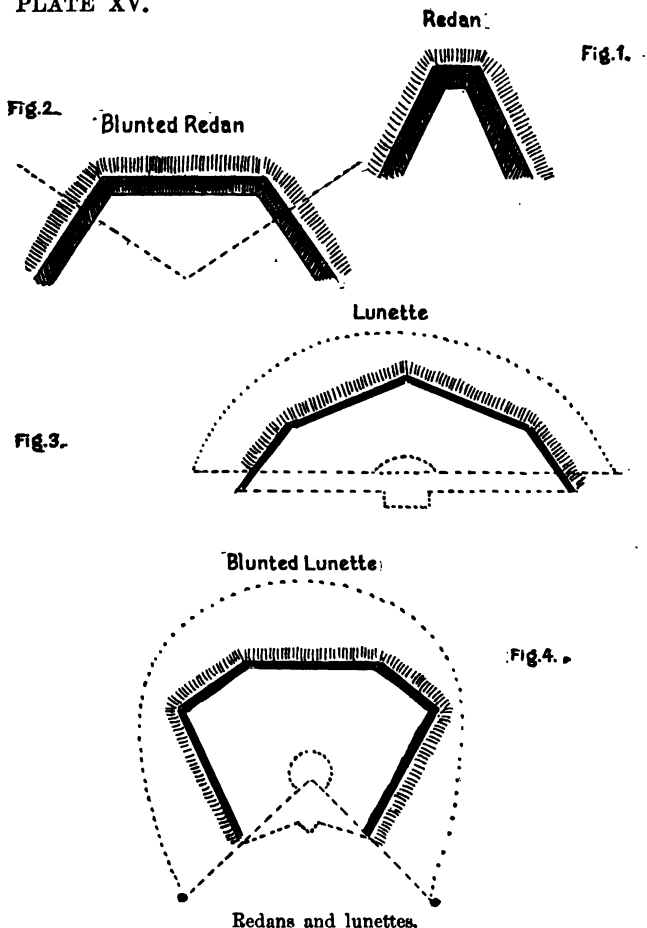


Fig. 8.



Examples of loopholes.

PLATE XV.



REDANS.—A redan is the simplest kind of field-work. It consists of two parapets of earth forming an angle, the apex of which is toward the enemy. It is unprotected in the rear. A number of redans connected by curtains constitute a line of intrenchments.

LUNETTES.—A lunette is a detached work with flanks, and has an angle toward the enemy. It is used for protecting avenues of approach, bridges, etc., and also for covering the curtains of field-works.

forts of different shapes are naturally suggested. As such a method of attack would divide the enemy's force into two parts at least, there will be an opportunity for the defenders, if strong enough, to rush out on one portion and destroy it before it can be succored, and this is the best means of meeting such an attempt. This counter-attack is like a quick return in fencing when the enemy has exposed himself. The right seizure of such moments is one of the most necessary and most difficult operations in war. If the defenders are very weak, and are yet bound not to retire, they will have more cause to fear flank and rear attack, and will arrange their defenses so as to cover them all round. Thus will be formed some sort of redoubt or fort, but the important rule—namely, *to be always able to sally out against the enemy*—will have to be violated or at least partially neglected. In such cases the defense can only last for a certain time. The defenders must yield in the end unless re-enforced.

“On the chance of having their line of defenses carried, the defender will form some minor works as a sort of citadel. It may be an interior retrenchment or a blockhouse. A portion of the force will garrison this to support, from a safe place, the efforts of the garrison.

“But supposing all this done, the enemy may refuse to make a direct attack on any portion of the work. He may keep his distance, and, concealing

himself as well as he can, in his turn may throw his missiles, not against the face of the defenders, but from the flank of any one of the sides of the work. This is called 'enfilade fire,' and places the defenders in the condition of receiving a permanent though slow flank attack. The missiles would then not only have a better chance of striking, but might kill or wound more than one man each. In fact, a heavy missile thrown by a large engine might bound all down the line and kill many in its course. The obvious precaution is to place some small defenses across those already erected and inside them. These are called 'traverses.'

"Then, in the case of a weak force which incloses itself for defense against a strong one, the enemy may postpone attack and endeavor to overwhelm the defenders by a long-continued shower of missiles. This is called a 'bombardment,' and in anticipation of it the defenders should build some kind of overhead cover for themselves sufficiently strong to resist the kind of missile likely to be directed against them. The simplest and perhaps best form of shelter is to excavate a gallery just behind or under the main line of defense. So we come to the 'field casemate,' which was used with such advantage by the Turks at Plevna that no amount of bombardment by the Russians was of any effect to turn them out of their forts." *

* See Plate XVI.

PLATE XVI.

Constructed at the same
time as Parapet
Fig. 1.

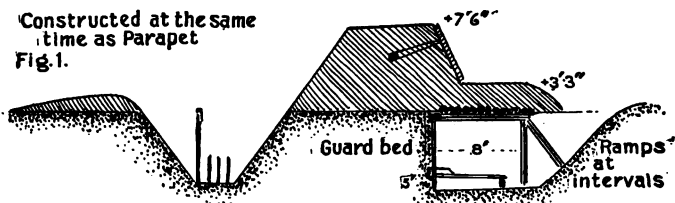


Fig. 2.

Constructed after Parapet

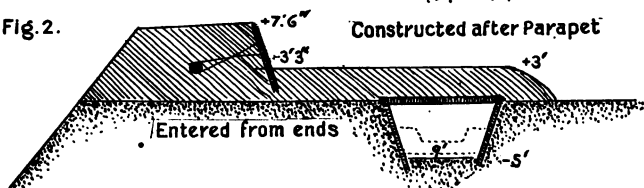


Fig. 3.

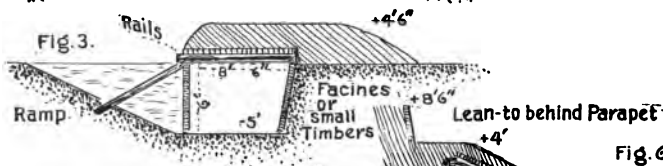


Fig. 4.

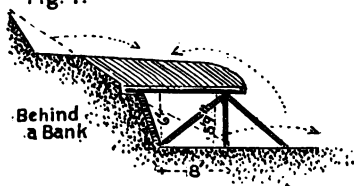
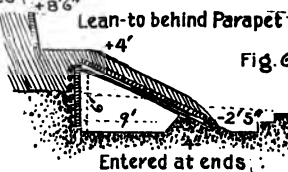
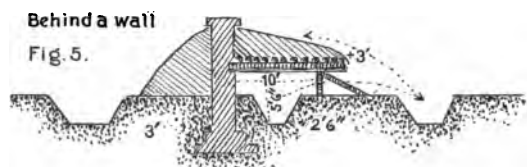


Fig. 6.



Behind a wall

Fig. 5.



Field casemates and splinter proofs.



Thus by the simplest process General Brackenbury leads us from the ordinary precautions of savages to the main features of field fortifications. All other details but develop these features to meet particular cases.

RECAPITULATION.

The main features are:

1. Some kind of cover which exists or can be constructed artificially, but must not be of such a size and shape as to hinder a full view of the enemy.
2. Such a general shape of the work as will guard against flank attacks.
3. A citadel of some sort to prevent a partial capture of the work from being necessarily permanent.
4. Protection from enfilade fire by means of traverses.
5. Complete protection for all the garrison not wanted at the time for fighting purposes. This is secured by field casemates, which are generally so arranged that the men can sleep in them.

All this, however, but relates to the first object, namely, obtaining cover from the enemy. The next thing necessary is "exposure of the enemy when advancing." This requires that everything hindering a good view of the enemy should be cleared away. A savage would gain little by getting behind a tree if his enemy were able to do likewise; field

works would be of little value if the enemy could advance under cover close up to them. Hence these works should be raised a little above the level of the surrounding country and obstacles removed, such as timber, hedges, walls, banks, etc., but these may be left, provided they run in the direction of the enemy, as then they would not hide him, but would divide his attack into fractions. If, however, these obstacles could prevent a flanking fire or retard a counter-attack, they should be levelled; on the whole, it is considered best to have a smooth field of fire.

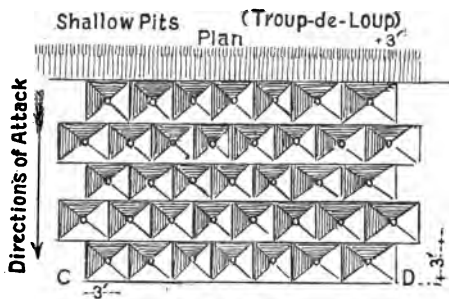
The third object refers to "hampering the enemy's movements by obstacles." Here the aim is to keep the enemy at a disadvantage by preventing his advance and exposing him to the full effect of the fire. The obstacles employed are many. There are military pits, abatis, fraises, wire entanglements, etc.* Where hollows are to be found in front they can be filled with abatis—trees cut down with their main branches sharpened and turned toward the enemy—and they are very desirable, as they do not impede the defenders' view nor afford shelter to the enemy. Land torpedoes and dynamite are also used. Here it must be pointed out that the weak point of all obstacles is that they hamper counter-attack.

The fourth object, "retaining freedom of movement" by "communications," requires sufficient space

* See Plates XVII and XVIII.

PLATE XVII.

Fig. 1.



Deep Pits

Fig. 3.

10 ft. from Centre to Centre

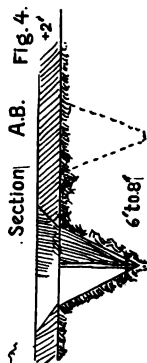
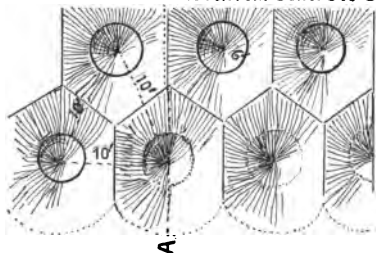


Fig. 5.



Fig. 6.



ABATIS.

Military pits and abatis.

PLATE XVIII.

Fig. 1.

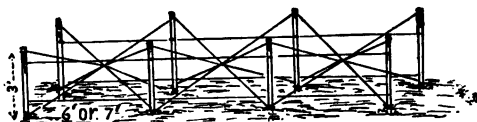


Fig. 2.

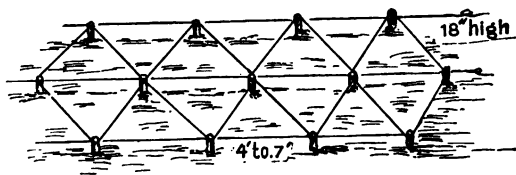
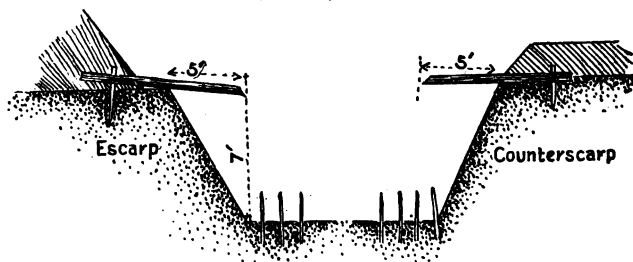


Fig. 3.

Fraises.



Wire entanglements and fraises.

for troops to issue in force and at the same time not expose the interior of the works to the enemy. This is accomplished by means of traverses.* In addition, the communications should be covered by the fire of the occupants, either flanking or direct, and if the exit and entrance can be hidden from the enemy's view so much the better. Sorties and counter-attacks can then be made more suddenly, and will therefore be more effective and impressive.

"Field fortifications imply all measures taken for the defense of positions intended only to be temporarily held by troops. Such defenses include the preparation of a field of battle and artificial cover obtained during combat; the more deliberate intrenchment of isolated posts, camps, depots, and magazines, the securing of defiles and bridge heads, the slight works thrown up by advance-guards awaiting re-enforcements, or by rear-guards to cover a retreat. . . . It also includes rapid trench work executed as an aid to an assault on field defenses" (Woolwich Text-Book).

Hasty Intrenchments.—The development of fire-arms in range and accuracy for both infantry and artillery has been so great that the use of intrenching tools is more imperatively necessary than ever in order to secure cover both in attack and defense; †

* See Plate XXI (redoubt).

† Night attacks are now more probable than ever against an enemy secure in a strong position and with the flanks protected.

for, in the light of modern experience, the enemy will be sure to have shelter trenches or other cover, and obstacles in the path of an advance, and to attack a steady, protected foe at any point with equal numbers would be rashness. The extended skirmish line with its supporting lines all pushed forward to a final concentration of force at the point of assault has been the result. But even if the opposing forces are equal, or nearly so, it will be necessary to engage the enemy along the length of his line; and this can be done only weakly at parts, so that the spade,* or, rather, intrenching tool, will be required to strengthen the weaker detachments or the skirmish line, as the case may require.

Different forms of shelter trenches are given in Plate XIX.

There are, however, a few points to be noticed in their consideration—namely, a shelter trench is not an obstacle to an advancing enemy; it affords only a certain amount of cover, and is not a fortification for permanent occupation. It should be used in the same manner as any accidental cover, and the men should be ready to advance from it at command.

Where the stay is to be protracted, a more suitable defense should be constructed by developing the form of trench up to a field parapet with its ditch; but

* The Romans are said to have conquered the world with the spade.

PLATE XIX.

Fig. 1.

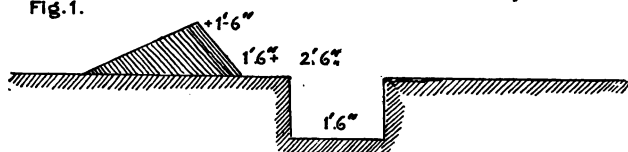


Fig. 2.

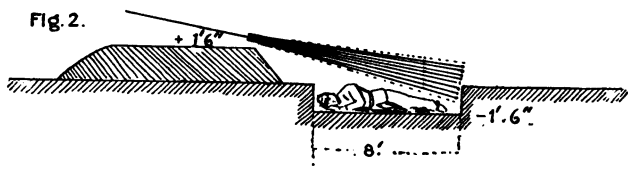
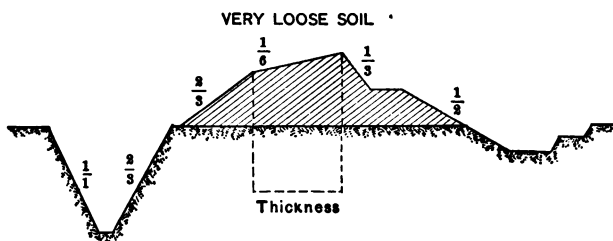
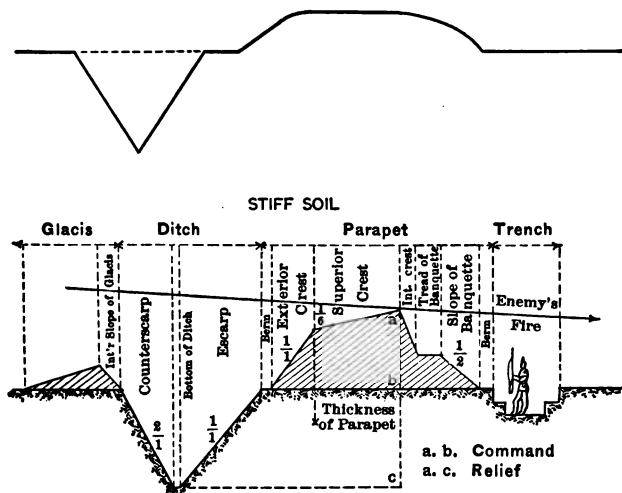


Fig. 3.



Forms of shelter trenches.

PLATE XX.



Sections of field parapets.

when this is done, it loses its value as a shelter trench by becoming an obstacle.*

The value of a shelter trench lies in this: that it affords a rest for careful aiming, diminishes the chances of its occupants being hit, and increases the possibility of loss to the enemy; besides, having no ditch, it can not shelter an enemy for an instant, and requires no flank defense. With the exception of marching, there is no operation of war in which hasty intrenchments may not be useful. In their construction all natural appearances should be imitated by covering newly turned earth with branches, leaves, sods, or anything corresponding to the general character of the *terrain*, for the reason that by so doing a less pronounced and decided object will be offered to attract the enemy's fire. General Hamley, in his *Operations of War*, shows that in acting on the defensive the front line is the fighting line and must be re-enforced from the rear, and when no natural cover exists, then artificial cover must be improvised by means of hasty intrenchments or shelter trenches.

But in any part of these intrenchments from which artillery or cavalry would issue, any such obstacle, no matter how slight, would be avoided in order to escape any possible disorder in an advance.†

“The defense ought always to try and augment

* See Plate XX.

† See Colonel Schaw's *Defense and Attack of Positions and Localities*, p. 69.

the value of the ground by fortification, and the shelter trench has become for it a condition of life or death " (Von Scheff).

" A single fort is of little use, but a front of forts, where the enemy can not pass one without coming in reach of the adjacent fort, has a different aspect " (Von Waldstalten).

" Military obstacles are not ' field work,' but artificial obstacles of any kind, so arranged as to check or embarrass the march of the enemy and detain him under the fire of the defenders at a convenient distance." Convenient distances are generally regarded as being within four hundred yards—that is, within close range—but there are countless cases where the range has been greater.

Obstacles are generally placed as follows:

1. In front of field works.
2. In ditches.
3. In gorges of open or half-closed works.
4. Round fortified houses, farms, villages, or woods.
5. Between two works to prevent the enemy from forcing the line.
6. To blockade any defiles or passages by which the enemy may advance.
7. To render ground impassable for cavalry.

Obstacles are of greater value nowadays than ever, because, no matter how short a time they embarrass the advance of an enemy, the rapidity and accuracy



PLATE XXI.

Fig. 1.

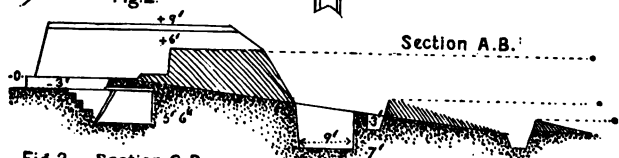
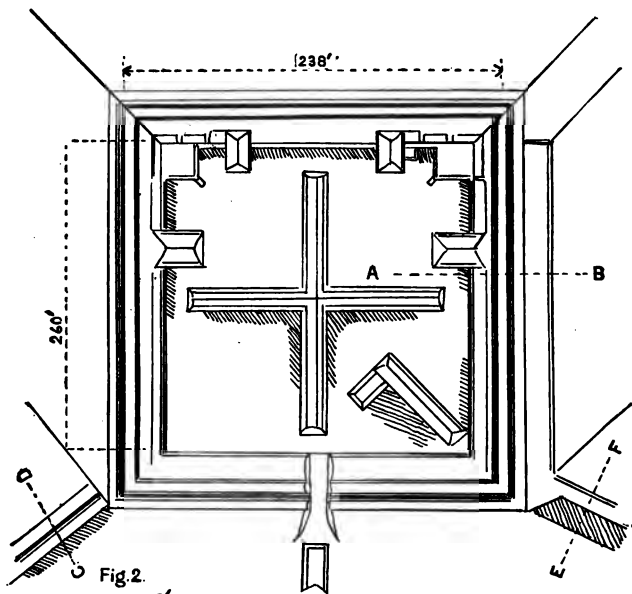


Fig. 3. Section C.D.



Fig. 4. Section E.F.

Shelter for
Reserves 100 Paces
In rear of Redoubt.

Fig. 5.

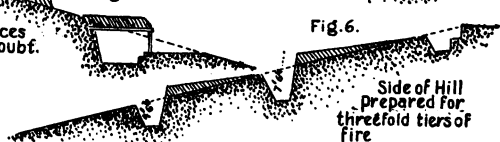


Fig. 6.

A "Plevna" redoubt, with sectional views.

of modern fire will cause greater loss than formerly; where one volley only was possible, several can now be fired.

When employed for any reason, it should be remembered that obstacles hamper counter-attack, so that if an offensive return is likely to be made they should be omitted generally. This is their chief drawback. Still, there are cases where the first necessity is to keep the enemy back at the place where obstacles are established, while the counter-attack comes from some other direction. "Such cases will happen when a long, thin line has to guard itself against being penetrated while its reserves are concentrating."

Mayne, in referring to the use of intrenching tools in the field, says: "But by far the greatest obstacle the attack has nowadays to overcome is the fire of the defense over a clear field of fire of at least four hundred yards; and hence, if the defenders have this open space in front of them, capable of being swept by their fire, they have no need of using heavy earthworks *as obstacles*, which require much time and labor to construct, but only such cover as will give them *shelter* against the enemy's fire."

The Russo-Turkish War, like the American civil war, was notable for its field works. "Everywhere in the fights at Plevna,* at Lovtcha, and wherever the attack had to advance or hold its ground, the want of tools was severely felt by the Russians. In

* See Plate XXI.

the struggle to hold the redoubts on the 'Green Hills,' taken by Skobelev, the men, enfiladed as they were on both flanks, worked all night with sword-bayonets, canteen lids, and hands, and even threw the dead into the gaps to bar the Turks."

"Every one has read Skobelev's complaints of the want of tools before Plevna. No one could accuse him of want of dash or recklessness under fire, and yet, when his division was led south to assist in a very rapid advance on the Turkish capital, he provided his men with Turkish spades, which they cheerfully carried to Constantinople, slung across the back, having learned their value in battle."

General Fraser, R. E., who followed this war, quoted from a Russian report as follows: "If the Government does not give its infantry a portable spade, the soldiers will buy them with their last pence."

Von Widdern, a well-known German writer, says: "In an attack, as in the defense, it is desirable that the spade should be utilized as much as the rifle and bayonet. It is high time to accustom infantry to consider this tool, equally as the rifle, as an *arm* from which it can obtain profit, not only on the defensive, to resist the attacks of the enemy, but also on the offensive, especially in order to promptly put a newly captured position in a state of defense, and to thus ward off any offensive returns."

Again, General Baron von Wechmar writes: "It

often happens that isolated fractions of an advancing force will be obliged to act temporarily on the defensive. For instance, an advance-guard may meet an enemy superior in numbers, and may fear being attacked before it can be supported by the main body. In such a case this advance-guard, instead of engaging in a doubtful offensive combat, would do everything to fortify as much as possible a rapidly chosen position by means of shelter trenches. . . . Are we sufficiently exercised in these improvised works of fortification on the battlefield? We do not think so. Practice is absolutely necessary in order to know how to rapidly choose the ground to be strengthened, and to calculate the number of men and tools, as well as the time required for the execution of the works."

The English, Germans, French, Austrians, and Russians have all felt the advantage of using the spade for intrenching purposes, even while bearing in mind the necessity for taking the offensive in battle, and have adopted a light intrenching tool as part of a soldier's equipment, to be used as an infantry weapon little less effective in its way than the rifle. Napoleon said, "There are five things which should never be separated from the soldier on service—viz., his rifle, ammunition, knapsack, provisions for at least four days, and his intrenching tool."

The kind of tools to be carried on service depends on the work to be done. At some time or other field intrenching will require the constructing of shelter

trenches, cutting down trees, hedges, etc., and making abatis, wire entanglements, etc. Hence spades, pick-axes, axes, pruning knives, wire, wire-nippers, saws, etc., must be provided. An intrenching tool combining both spade and pick is most desirable for infantrymen for shelter-trench work or loopholing. The bulk of the men could carry these tools, and the remainder small axes, while the extra tools—crowbars, extra supply of axes, wire, cross saws, mallets, etc.—would be carried in wagons. The engineers would naturally supply these and other necessary implements, but the portable combined spade and pick and small axe should be carried by the foot soldier. In training the men to use the spade they should be taught to work lying down.

The United States authorities substituted the hunting-knife for the Rice trowel bayonet in 1890. A regular intrenching tool had been designed by the Ordnance Department. This was dropped, as it was believed that the hunting-knife would be sufficient for all purposes. Then the knife bayonet took the place of the hunting-knife, but it was found that when the last weapon was used as an intrenching tool it suffered such injury as to render it speedily useless. This resulted in a discussion as to whether it would not be wise to return to the hunting-knife. The present rifle in use by the United States Army—the Krag Jorgenson—has a knife bayonet.

... A knife that was adopted on the recommendation

PLATE XXII.

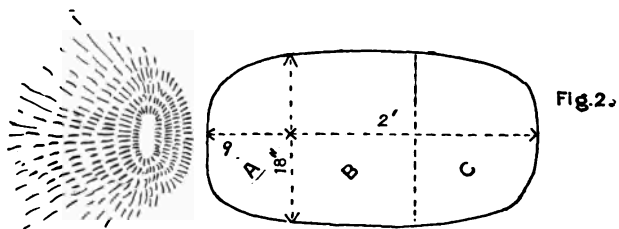
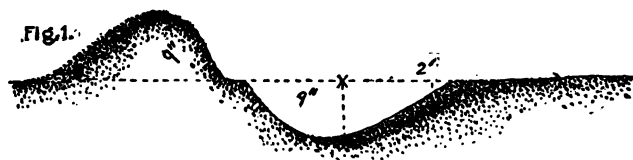


Fig.3.



A hasty intrenchment (single).

of General Sheridan as part of the equipment of a soldier on the frontier had a blade of eight and five sixteenths inches in length, with a width of two inches. When in its black leather scabbard it weighed in all one pound three ounces.

This style of knife could be used in constructing individual rifle pits as follows,* as shown by Major J. P. Sanger, United States Army: † Lie down as prescribed in Drill Regulations, paragraphs 67-71, placing the rifle on the ground, muzzle to the front. Draw a semicircle, sufficiently large to admit the shoulders, with the point and cutting edge of the knife, bearing down hard enough to cut through the sod, if any. Then cut back from the ends of the semicircle to a point on each side about in line with the knees. Pass the knife quickly under the sod, turning it over to the front, and use the knife as a pick to loosen the earth, after which shove the loose earth forward over the sod, making a mound of it and scooping out sufficient to hide the trunk. The bottom of the pits should slope up from front to rear, so that, should the pits be evacuated or captured, the enemy could not turn them to account. The portion of sod marked out should be cut in sections to facilitate easy removal. Where there is no undue exposure, the task can be accomplished more quickly by

* See Plate XXII.

† See Journal of the Military Service Institution, November, 1896.

working with the back to the enemy and drawing the loose earth forward with the knife as a scraper, after the sod has been turned up.

The pit is only intended to shelter the head and trunk; the legs are not supposed to be covered, but where time permits and conditions are favorable the pit may be deepened and lengthened so as to take in the whole body. The soldier should fire from the side of the mound, lying on his side, and no attempt should be made to fire over the earth pile.

These pits can be constructed by an active, able-bodied man in three minutes, after a little practice.

As a rule, these pits would be used as much for concealment as for protection, and where they are separated by intervals of, say, one to one and a half yard, they would give protection against an oblique fire. The nature of the soil would affect the mound as a means of protection against the penetration of rifle fire.

Major Sanger says, in reference to an inspection of Fort Lewis in 1889: "I found five companies of the Sixth Infantry there stationed equipped with the hunting-knife, and on inquiry learned that they had received no instruction in its use as an intrenching tool. At my suggestion the battalion was formed and marched to the target range where the officers were assembled, and instructed briefly in its use. They in turn assembled the chiefs of squads, and the latter imparted the instruction to the other men. The

entire battalion was then deployed as skirmishers at one and a half yard interval. At the bugle signal 'Lie down,' the digging began, and at the signal 'Rise,' given after a lapse of five minutes, it was discontinued and the pits inspected. They were dug by the men in a recumbent position, and were generally satisfactory."

APPENDIX.

ADVANCE- AND REAR-GUARD DRILL FOR INFANTRY.

THE explanation and method of forming an advance- or rear-guard promptly, as shown herewith, are in accordance with the drills arranged by Major Arthur L. Wagner, United States Army.

It is agreed that it would cause needless fatigue to march from camp or bivouac with an advance-guard which needs to be thrown out only after the outpost is passed. In order to facilitate a quick formation, the following drills have been arranged:

For purposes of instruction, the distances and intervals given may be varied to accord with the available drill space. Those given, however, are normal, and should be taken whenever possible.

As the *terrain* will not always lend itself readily to normal formations, of either advance- or rear-guards, the commander should, when such formations are impracticable, designate the different parts, distances, intervals, numbers of flanking groups and connecting files, and give such other instructions as in his judgment are necessary.

COMPANY ADVANCE-GUARD DRILL.

A single company forming the advance-guard, being in column of fours, right in front, is divided as follows:

1st section, advance party, under 1st sergeant;	
2d section, support,	“ 1st lieutenant;
2d platoon, reserve,	post of the commander.

Being at a halt, the captain commands: 1. Form advance-guard; 2. March.

At the first command the 1st sergeant takes command of the 1st section, and causes the corporal of the first four to exchange places with his rear-rank man. At the command, March! the front rank of the first four, under the command of the 2d sergeant, moves straight to the front (one hundred yards) to form the point.

The rear rank of the first four obliques to the left and the front rank of the second four obliques to the right (both in charge of a corporal) to form the flanking groups of the advance party (one hundred and fifty yards). The point and flankers move out to their places in double time, taking the quick time as soon as they have reached their respective positions. (See Plate I, p. 34.)

The 1st sergeant detaches two men from the rear rank of the second four to march as connecting files between the advance party and the support, and puts the other two men in the line of file-closers. He then

commands: 1. Forward; 2. March, when the point has reached its proper distance—one hundred yards.

Should the section consist only of two fours, the 1st sergeant marches the rear rank of the second four forward, and the connecting files are furnished by the support.

The 1st lieutenant, remaining with and in charge of the 2d section—the support—commands: 1. Forward; 2. March, as soon as the support has its proper distance from the advance party—two hundred yards—and adds: 1. Rear four; 2. Right and left oblique; 3. Double time; 4. March. The front rank of the rear four obliques to the right, and the rear rank to the left at double time, and form the flankers of the support, taking quick time on gaining their positions. These groups move farther out on the flanks—about two hundred yards—in order to extend the field of view.

The captain, remaining with the reserve—2d platoon—commands: 1. Forward; 2. March, as soon as the reserve has its proper distance from the support—five hundred yards. Should flankers be required, they are sent out at double time, by the same commands as in the case of the support: 1. Rear (or first and rear) four; 2. Right and left oblique; 3. Double time; 4. March. These flanking groups should uncover those of the support by being extended farther out.

The entire advance-guard marches at attention,

but pieces may be carried as in extended order (at ease); the advance party and support march on as broad a front as practicable, and the reserve in columns of fours. The reserve sends out connecting files to preserve communication with the vanguard and with the main body.

If the command is: 1. Form advance-guard; 2. Double time; 3. March, the point and flankers move out as already explained, but do not reduce their pace upon gaining their positions. The advance party, support, and reserve move forward successively in double time. The reserve takes the quick time at the command of the captain, and the other parts of the advance-guard then conform to the pace of the reserve.

Should the company be left in front, the duties prescribed for the 1st lieutenant will be performed by the 2d lieutenant, and the point will be commanded by the 3d sergeant. *This rule is general.* In either case the 1st sergeant commands the section constituting the advance party.

The main body marches five hundred yards in rear of the reserve.

BATTALION ADVANCE-GUARD DRILL.

When the advance-guard consists of a battalion of four companies, the first and second constitute the vanguard, and the third and fourth the reserve.

The vanguard is commanded by the senior captain. The battalion is divided as follows:

1st platoon (1st company),	advance party, under 1st lieutenant;
2d platoon (1st company),	} support, under senior captain ;
2d company,	
3d and 4th companies,	reserve, post of commander.

Being at a halt, in column of fours, the major commands: 1. Form advance-guard; 2. March, the command being repeated by the commander of the vanguard. The point and flankers move out from the first section of the leading company as explained for the company, the first platoon of the first company constituting the advance party. The 1st sergeant does not take command of the first section. When the point has gained its proper distance—one hundred and fifty yards—the lieutenant commanding the first platoon moves it forward after establishing connecting files between the advance party and the support as explained for the company acting alone, and forms line by the commands: 1. Right (or left) front into line; 2. Double time; 3. March.

As soon as the advance party has its proper distance—two hundred yards—the commander of the vanguard commands: 1. Forward; 2. March, immediately adding: 1. Rear four first and second companies; 2. Right and left oblique; 3. Double time; 4. March. The designated fours move out as flankers, as already explained for the company, those of the first company being slightly in advance and those of

the second company slightly in rear of the support. If only one group of flankers is needed on each flank, they are formed by the rear four of the first company.

When the support has gained its proper distance—six hundred yards—the major moves the reserve forward in column of fours, after establishing connecting files between the reserve and support and orders flankers out from the reserve, if necessary, by the same means as the support.

The vanguard would march in column of platoons.

The main body marches eight hundred yards in rear of the reserves.

TO ASSEMBLE AN ADVANCE-GUARD.

To assemble the advance-guard, the reserve is halted, and the other parts of the advance-guard at once halt. The command is then given: 1. Assemble; 2. March, or the commander gives the signal for assembly as prescribed in the drill regulations.

The command is repeated by the commander of the vanguard and then by the commander of the advance party. At the command March, the point, flankers, and connecting files move on the shortest lines to the body from which they were sent out, and take their places in the column.

The detached men having thus rejoined, the advance party marches back and joins the support, and

the united bodies then march back and join the reserve.

Should the advance party or support not be in column of fours, such column should be formed before its commander gives the order for assembling on the reserve.

If it is desired to assemble on the advance party the command is: 1. Assemble on the advance party; 2. March. The command is executed as prescribed above, except that the advance party remains halted and the support and reserve move forward and close upon it.

The assembly may be similarly executed on the support by the command: 1. Assemble on the support; 2. March.

In this case the assembly is made as already explained, except that the advance party marches back and the reserve moves forward to join the support.

In all cases the assembly may be made in quick or double time.

Company Rear-Guard Drill.—A company acting as a rear-guard is formed in column of fours, facing the enemy, and at a halt. The main body having gained the proper distance—five hundred yards—the captain commands: 1. Form rear-guard; 2. Second platoon, four left about; 3. March, and the second platoon under command of the captain at once moves off and follows the main body. At the command: 1. First and rear fours; 2. Right and left

oblique; 3. March, the designated fours move out as flankers for the reserve, and communication by means of connecting files is established between the main body and the vanguard as prescribed for the advance-guard (see Plate VI, p. 56).

When the reserve has gained its distance—five hundred yards—the 1st lieutenant commands: 1. Second section; 2. Fours left about; 3. March. The section follows the reserve as the support, and maintains its proper distance. Flankers are sent out from the rear four as in the advance-guard by the command: 1. Rear four; 2. Right and left oblique; 3. Double time; 4. March.

The support having reached its position—two hundred yards—the 1st sergeant commands: 1. Form rear party; 2. March. At the first command the corporal of the first four exchanges places with his rear-rank man, and at the command, March, the rear rank of the first four and the front rank of the second four face outward and leave the column in double time, and upon gaining the proper interval from the column—one hundred and fifty yards—face toward the support and march in quick time.

The front rank of the first four stands fast. Immediately after giving the command for forming the rear party, the 1st sergeant commands: 1. Fours left about; 2. March, and afterward detaches two men as connecting files between the rear party and the support. The front rank first four takes the formation

for a rear point and marches off under the command of the 2d sergeant * as soon as the rear party has its proper distance—one hundred yards.

Battalion Rear-Guard Drill.—In the case of a battalion, four companies, acting as a rear-guard, the division into parts corresponds with its formation as an advance-guard. The battalion being in column of fours, faced toward the enemy and halted, the major commands: 1. Form rear-guard; 2. Third and fourth companies; 3. Fours left about; 4. March, and the reserve, under the command of the major, moves off and follows the main body at eight hundred yards' distance. Connecting files between the main body and the vanguard are detached, and, if necessary, flanking groups are sent out as in the case of an advance-guard by the commands: 1. Rear fours; 2. Third and fourth companies; 3. Right and left oblique; 4. Double time; 5. March.

If only one group of flankers is required on each flank, they are formed by the rear four of the third company.

While the reserve is gaining its distance, the commander of the vanguard warns the second company and the second platoon of the first company that they form the support, and when the reserve has marched six hundred yards, commands: 1. Support; 2. Fours left about; 3. March, and it follows the reserve.

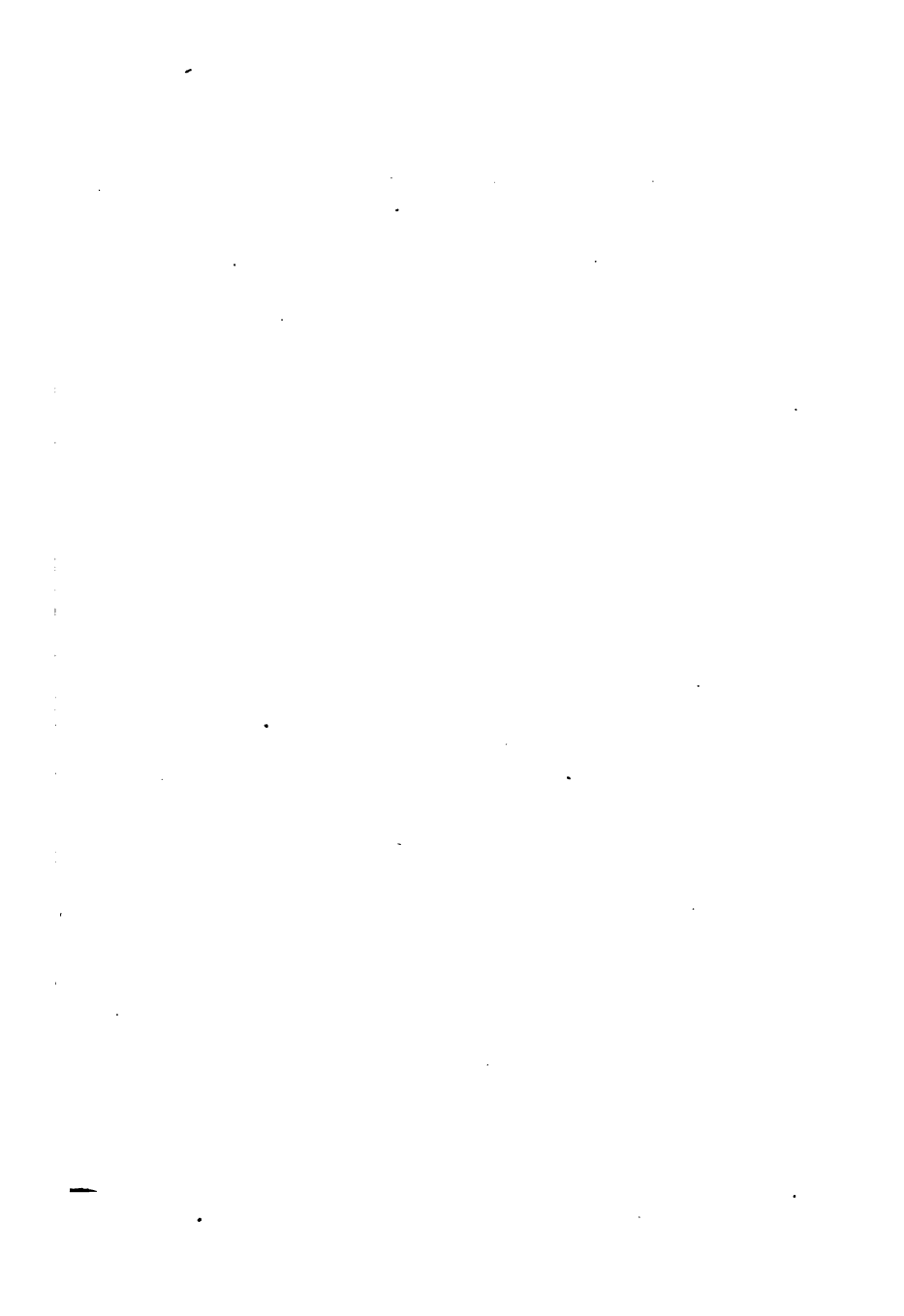
* See general rule, p. 215.

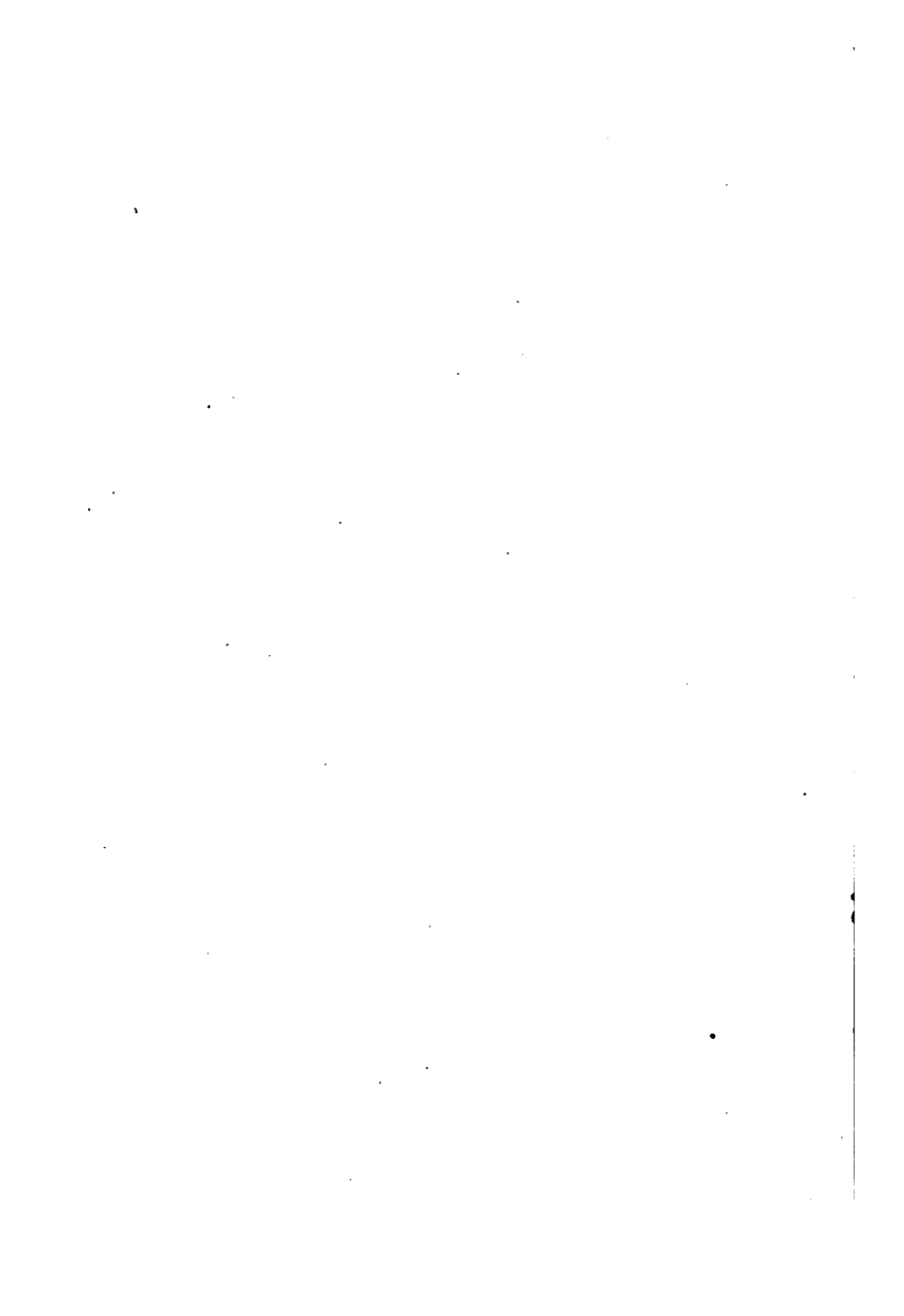
Flankers are sent out by the commands: 1. First and rear fours; 2. Right and left oblique; 3. Double time; 4. March. The designated fours move out as flankers as already prescribed, those of the leading company being slightly in advance, and those of the rear platoon slightly in the rear of the support.

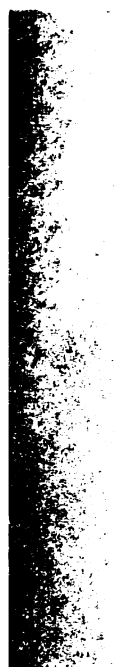
The support having marched off, the 1st lieutenant commanding the first platoon, first company, commands: 1. Form rear party; 2. March. At the first command the corporal of the first four exchanges places with his rear-rank man, and at the command March, the rear rank of the first four and the front rank of the second four face outward and leave the column in double time, and, upon gaining the proper interval from the column, face in the direction of the support and march in quick time. The front rank of the first four stands fast.

Immediately after giving commands for forming the rear party, the 1st lieutenant commands: 1. Fours left about; 2. March, and detaches two men as connecting files between the rear party and the support, and marches two hundred yards in rear of the support. The front rank, first four, takes a proper formation for a rear point, and when the rear party has marched one hundred and fifty yards, follows under the command of the 2d sergeant.

THE END.







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